Ecoer TDi Pro 2 Series R-454B Unitary Service Manual

All phases of this installation must comply with National, State and Local Codes.

IMPORTANT

These instructions do not cover all variations in systems or provide for every possible contingency to be met in connection with installing and servicing. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to local distributor.

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1. Safety Precautions

Read the following safety instructions before installing the unit or doing servicingwork.

NOTE: R454B refrigerant is a blend and should only be added to the system in liquid state.

⚠ **WARNING : MAY CAUSE PERSONAL DEATH OR SERIOUS INJURY.**

⚠ **CAUTION : MAY LEAD TO INJURY OR STRUCTURAL DAMAGE UNDER SOME CONDITIONS.**

⚠ WARNING
HAZARDOUS VOLTAGE Failure to follow this warning could result in property damage, severe personal injury, or death. Disconnect all electric power, including remote disconnections before servicing. Follow proper lockout/tagout procedures to ensure the power cannot be inadvertently energized.
REFRIGERANT OIL **Any attempt to repair central air conditioner and heat pump products may result in property damage, severe personal injury, or death.** **Use Only R-454B Approved Service Equipment. All R-454B systems with variable speed compressors use variable speed compressor oil that readily absorbs moisture from the atmosphere. To limit this "hygroscopic" action, the system should remain sealed whenever possible. If a system has been open to the atmosphere for more than 4 hours, the compressor oil must be replaced. Never break a vacuum with air and always change the driers when opening the system for component replacement.**
SERVICE VALVES Failure to follow this warning will result in abrupt release of system charge and may result in personal injury and/or property damage. Extreme caution should be exercised when opening the liquid service valve. Turn valve stem counterclockwise only until the stem contacts the rolled edge. No torque is required.
BRAZING REQUIRED Failure to inspect refrigerant lines or use proper service tools may result in equipment damage or personal injury. If using existing refrigerant lines, make sure that all joints are brazed, not soldered.
HIGH CURRENT LEAKAGE Failure to follow this warning could result in property damage, severe personal injury, or death. **Grounding is essential before connecting electrical supply.**
SERVICING/RISK OF FIRE Flammable refrigerant used. Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.
VENTILATION Ensure that the area is in the open or that it is ad-equately ventilated before breaking into the system or conducting any hot work.
CHECKING FOR PRESENCE OF REFRIGERANT The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable atmospheres. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i. e. non-sparking, adequately sealed or intrinsically safe.

⚠ WARNING

INSTALLATION

Any person who is involved with working on or breaking into a refrigerant circuit should hold a current valid certificate from an industry-accredited assessment authority, which authorises their competence to handle refrigerants safely in accordance with an industry recognised assessment specification.
Maintenance and repair requiring the assistance of other skilled personnel shall be carried out under the supervision of the person competent in the use of flammable refrigerants.

1. That the installation of pipe-work shall be kept to a minimum.
2. That pipe-work shall be protected from physical damage.
3. Where refrigerant pipes shall be compliance with national gas regulations.
4. That mechanical connections shall be accessible for maintenance purposes.
5.Be more careful that foreign matter(oil, water,etc) does not enter the piping. Also, when storing the piping, securely seal the opening by pinching, taping, etc.
6. All working procedure that affects safety means shall only be carried by competent persons.
7.Appliance shall be stored in a well ventilated area where the room size corresponds to the room area as specifiec for operation.
8.Joints shall be tested with detection equipment with a capability of 5 g/year of refrigerant or better, with the equipment in standstill and under operation or under a pressure of at least these standstill or operation conditions after installation. Detachable joints shall NOT be used in the indoor side of the unit (brazed, welded joint could be used).
9. In cases that require mechanical ventilation, ventilation openings shall be kept clear of obstruction.

THE REQUIREMENTS FOR INSTALLATION SPACE OF APPLIANCE AND/OR VENTILATION REQUIREMENTS

1.The requirements for installation space of appliance and/or ventilation requirements are determined according to the mass charge amount(M) used in the appliance,the installation location,the type of ventilation of the location or of the appliance.
2.Piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15. IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA. B52. All field joints shall be accessible for inspection prior to being covered or enclosed.
3.That protection devices, piping, and fittings shall be protected as far as possible against adverse environmental effects, for example. the danger of water collecting and freezing in relief pipes or the accumulation of dirt and debris.
4.That piping in refrigeration systems shall be so designed and installed to minimize the likelihood of hydraulic shock damac.na the system.
5.That steel pipes and components shall be protected against corrosion with a rustproof coating before applying any insulation.
6. That precautions shall be taken to avoid excessive vibration or pulsation.
7.The minimum floor area of the room shall be mentioned in the form of a table or a single figure without reference to a formula.
8.After completion of field piping for split systems, the field pipework shall be pressure tested with an inert gas and then vacuum tested prior to refrigerant charging, according to the following requirements.
9.Field-made refrigerant joints indoors shall be tightness tested according to the following requirements: The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0,25 times the maximum allowable pressure. No leak shall be detected.

⚠ WARNING

QUALIFICATION OF WORKERS

Any maintenance, service and repair operations must be required qualification of the working personnel. Every working procedure that affects safety means shall only be carried out by competent persons that joined the training and achieved competence should be documented by a certificate. The training of these procedures is carried out by national training organizations or manufacturers that are accredited to teach the relevant national competency standards that may be set in legislation. All training shall follow the ANNEX HH requirements of UL 60335-2-40 4th Edition.

Examples for such working procedures are:

- breaking into the refrigerating circuit;
- opening of sealed components;
- opening of ventilated enclosures.

In addition,this appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure they do not play with the appliance.

WORK PROCEDURE

Works shall be undertaken under a controlled procedure so as to minimise the risk of a flammable gas or vapour being present while the work is being performed.

PRESENCE OF FIRE EXTINGUISHER

If any hot work is to be conducted on the refrigerating equipment or any associated parts, the appropriate fire extinguishing equipment shall be available to hand. Have a dry powder or CO_2 fire extinguisher adjacent to the charging area.

NO IGNITION SOURCES

No person carrying out work in relation to a refrigerating system which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.

CHECKS TO THE REFRIGERATION EQUIPMENT

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer’s maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer’s technical department for assistance. The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS as applicable:

1.The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed.

2. The ventilation machinery and outlets are operating adequately and are not obstructed.

3.If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.

4.Markings on the equipment should be visible and legible. Markings and signs that are illegible shall be corrected.

5.Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

⚠ WARNING

CHECKS TO ELECTRICAL DEVICES

For systems containing refrigerant, all repair and maintenance to electrical components shall include initial safety checks and component inspection procedures such as that capacitors are discharged in a safe manner to avoid possibility of sparking, that no live electrical components and wiring are exposed while charging, recovering, or purging the system, and that there is continuity of earth bonding. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used that is reported to the owner of the equipment, so all parties are advised.

NOTE –Sealed electrical components shall be replaced, not repaired.

NOTE – Intrinsically safe components must be replaced, not repaired.

NOTE – All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out with work in confined spaces being avoided.

DETECTION OF FLAMMABLE REFRIGERANTS

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used. The following leak detection methods are deemed acceptable for all refrigerant systems. Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and that 12.5 % refrigerant is confirmed. Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe- work. If a leak is suspected, all naked flames shall be removed/extinguished. If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.

REMOVAL AND EVACUATION

When breaking into the refrigerant circuit to make repairsor for any other purpose – conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed and, since flammability is a consideration, procedures such as safely remove refrigerant following local and national regulations, purging the circuit with inert gas, evacuating (optional for A2L), purging with inert gas (optional for A2L), or opening the circuit by cutting or brazing be adhered to. The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems. For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum (optional for A2L). This process shall be repeated until no refrigerant is within the system (optional for A2L). When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to be able to perform the required work. Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and working area is well ventilated.

⚠ WARNING

CABLING

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

CHARGING PROCEDURES

In addition to conventional charging procedures; the following requirements shall be followed:

•Works shall be undertaken with appropriate tools only (In case of uncertainty,please consult the manufacturer of the tools for use with flammable refrigerants) .

• Ensure that contamination of different refrigerants does not occur when using charging equipment.

• Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.

• Cylinders shall be kept upright.

• Ensure that the refrigeration system is earthed prior to charging the system with refrigerant.

• Label the system when charging is complete(if not already).

• Extreme care shall be taken not to overfill the refrigeration system.

•Prior to recharging the system it shall be pressure tested with oxygen free nitrogen (OFN), The system shall be leak tested on completion of charging but prior to commissioning.

• A follow up leak test shall be carried out prior to leaving the site.

DECOMMISSIONING

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is requiredprior to re-use of recovered refrigerant. It is essential that electrical power is available before the task iscommenced.

a. Become familiar with the equipment and its operation.

b. Isolate system electrically.

c. Before attempting the procedure ensure that:

• mechanical handling equipment is available, if required, for handling refrigerant cylinders;

• all personal protetive equipment is available and being used correctly;

• the recovery process is supervised at all times by a competent person;

• recovery equipment and cylinders conform to the appropriate standards.

d. Pump down refrigerant system, if possible.

e.If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

f. Make sure that cylinder is situated on the scales before recovery takes place.

g. Start the recovery machine and operate in accordance with instructions.

h. Do not overfill cylinders (no more than 80 % volume liquid charge).

i. Do not exceed the maximum working pressure of the cylinder, even temporarily.

j.When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

k.Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

LABELLING

Equipment shall be labelled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing FLAMMABLE REFRIGERANTS; ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANT.

⚠ WARNING

RECOVERY

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended good practice that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i. e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

UNVENTILATED AREAS

For appliances containing more than any refrigerating circuit, the manual shall include a statement advising that an unventilated area where the appliance using FLAMMABLE REFRIGERANTS is installed shall be so constructed that should any refrigerant leak, it will not stagnate so as to create a fire or explosion hazard.

This shall include:

1.A warning that if appliances with A2L REFRIGERANTS connected via an air duct system to one or more rooms are installed in a room with an area less than >Amin as determined in Clause GG.2, that room shall be without continuously operating open flames (for example an operating gas appliance) or other POTENTIAL IGNITION SOURCES (for example an operating electric heater, hot surfaces). A flame- producing device may be installed in the same space if the device is provided with an effective flame arrest.

2.For appliances using A2L REFRIGERANTS connected via an air duct system to one or more rooms, a warning with the substance of the following: "Auxiliary devices which may be a POTENTIAL IGNITION SOURCE shall not be installed in the duct work. Examples of such POTENTIAL IGNITION SOURCES are hot surfaces with a temperature exceeding X ° C and electric switching devices".

NOTE X is the maximum allowable surface temperature as defined in 22.117.

The manufacturer should specify other potential continuously operating sources known to cause ignition of the refrigerant used.

The appliance shall be stored so as to prevent mechanical damage from occurring.

3.For appliances using A2L refrigerants connected via an air duct system to one or more rooms, a warning that only auxiliary devices approved by the appliance manufacturer or declared suitable with the refrigerant shall be installed in connecting ductwork. The manufacturer shall list in the instructions all approved auxiliary devices by manufacturer and model number for use with the specific appliance, if those devices have a potential to become an ignition source.

⚠ WARNING

4.A warning that if appliances connected via an air duct system to one or more rooms with A2L REFRIGERANTS are installed in a room with an area less than 4 minutes as determined in Clause GG.2. or installed in a room with an EFFECTIVE DISPERSAL VOLUME VED less than the minimum as determined by Clause 101.DVN.8, that room shall be without continuously operating open flames (e.g. an operating gas appliance) or other POTENTIAL IGNITION SOURCES (for e.g. an operating electric heater hot surfaces). A flame-producing device may be installed in the same space if the device is provided with an effective flame arrest.
5.For REFRIGERANT DETECTION SYSTEMS, the function and operation and required servicing measures.
6.For LIMITED LIFE REFRIGERANT SENSORS Used in REFRIGERANT DETECTION SYSTEMS, the specified end-of-life and replacement instructions.
7.REFRIGERANT SENSORS for REFRIGERANT DETECTION SYSTEMS Shall Only be replaced with sensors specified by the appliance manufacture; and instructions to verify actuation of mitigation actions per Annex GG or Annex 101.DVN as applicable.
For appliances using FLAMMABLE REFRIGERANTS with safety features that depend upon the proper function of a leak detection system used for leak mitigation, the instructions and unit markings shall contain the substance of the following:
"LEAK DETECTION SYSTEM installed. Unit must be powered except for service." If any remote located REFRIGERANT SENSOR is employed to detect leaked refrigerant, such a remote located REFRIGERANT SENSOR shall also apply to this marking or be accompanied by such instructions.

TRANSPORTATION,MARKING AND STORAGE

a. General

The following information is provided for units that employ FLAMMABLE REFRIGERANTS.

b. Transport of equipment containing flammable refrigerants

Attention is drawn to the fact that additional transportation regulations may exist with respect to equipment containing flammable gas. The maximum number of pieces of equipment or the configuration of the equipment permitted to be transported together will be determined by the applicable transport regulations.

c. Marking of equipment using signs

Signs for similar appliances used in a work area are generally addressed by local regulations and give the minimum requirements for the provision of safety and/or health signs for a work location.
All required signs are to be maintained and employers should ensure that employees receive suitable and sufficient instruction and training on the meaning of appropriate safety signs and the actions that need to be taken in connection with these signs:
The effectiveness of signs should not be diminished by too many signs being placed together. Any pictograms used should be as simple as possible and contain only essential details.

d. Disposal of equipment using flammable refrigerants

See national regulations.

e. Storage of equipment/appliances

The storage of the appliance should be in accordance with the applicable regulations or instructions,whichever is more stringent.

f. Storage of packed (unsold) equipment

Storage package protection should be constructed in such a way that mechanical damage to the equipment inside the package will not cause a leak of the REFRIGERANT CHARGE.
The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

⚠ CAUTION

AUTHORIZED PERSONNEL ONLY

This information is intended for use by individuals possessing adequate backgrounds of electrical and mechanical experience. Any attempt to repair central air conditioner or heat pump products may result in personal injury and/or property damage.

INDOOR UNIT REQUIRMENT

It is recommended to equip indoor units with **adjustable TXV/EEV for R-454B heat pump**.

The model of TXV/EEV should be suitable for the system capacity and should be with internal check valves for heat pump, which can be verified to work properly by checking superheat in cooling.

No micro channel coil shall be used for heat pump.

Micro channel coils are suitable for cooling only system.

HOT SURFACE

May cause minor to severe burns

Failure to follow this caution could result in property damage or personal injury.

Do not touch top of compressor.

GROUNDING REQUIRED

Failure to inspect or use proper service tools may result in equipment damage or personal injury. Reconnect all grounding devices. All parts of this product that are capable of conducting electrical current are grounded. If grounding wires, screws, straps, clips, nuts, or washers used to complete a path to ground are removed for service, it must be returned to their original position and properly fastened.

CONTAINS REFRIGERANT

Failure to follow proper procedures can result in personal illness or injury or severe equipment damage. System contains oil and refrigerant under high pressure. Recover refrigerant to relieve pressure before opening the system.

FUSIBLE RELIEF VALVE SAFETY INSTRUCTIONS

Fusible Relief Valve are precision safety devices. Users must never attempt to dismantle or replace them on their own, as this may result in system explosion or refrigerant leakage risks.

Ensure that no flammable materials (such as curtains, paper, etc.) are placed near the air conditioner to prevent fire hazards caused by high-temperature gas discharge when the Fusible Relief Valve is activated.

Explanation of symbols displayed on the indoor unit or outdoor unit

	**WARNING**	This symbol shows that this appliance used a flammable refrigerant. lf the refrigerant is leaked and exposed to anexternal ignition source, there is a risk of fire.
	**CAUTION**	This symbol shows that the operation manual should be read carefully.
	**CAUTION**	This symbol shows that information is available such as the operating manual or installation manual.
	**CAUTION**	This symbol shows that a service personnel should be handling this equipment with reference to the installation manual.

⚠WARNING

Disconnect all power to unit before installing or servicing. More than one disconnecting switch may be required to de-energize the equipment. Hazardous voltage can cause servere personal injury or death.

Installation and maintenance must be performed by authorized personnel only.
Consumer service is recommended only for filter cleaning/replacement. Never operate the unit with the access panels removed.

Failure to inspect pipes or use proper service tools may result in equipment damage or personal injury. if using existing refrigerant pipes, make sure that all joints are brazed, not soldered.

The unit must be permanently grounded.
Failure to do so can result in electrical shock causing personal injury or death.

PROPOSITION 65: This appliance contains fiberglass insulation. Respirable particles of fiberglass are known to the State of California to cause cancer. All manufacturer products have to meet current federal OSHA Guidelines for safety.
California Proposition 65 warnings are required for certain products that are not covered by the OSHA standards. It requires warnings for products sold in California that contain or produce any of over 600 listed chemicals known to the State of California to cause cancer or birth defects such as fiberglass insulation, lead in brass, and combustion products from natural gas.
All “new equipment” shipped for sale in California will have labels stating that the product contains and /or produces Proposition 65 chemicals. Although we have not changed our processes, having the same label on all our produced facilitates manufacturing and shipping. We cannot always know “when or if” products will be sold in the California market. You may receive inquiries from customers about chemicals found in, or produced by, some of our heating and air-conditioning equipment, or found in natural gas used with some of our products. Listed below are those chemicals and substances commonly associated with similar equipment in our industry and other manufacturers.

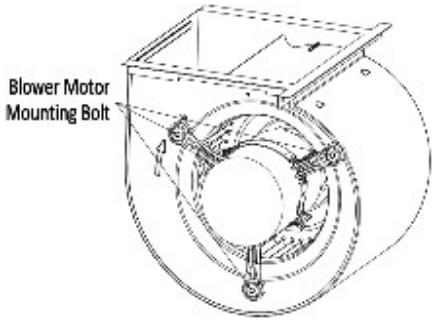
- Glass Wool (Fiberglass) Insulation
- Carbon Monoxide (CO).
- Formaldehyde
- Benzene

More details are available at the websites for OSHA (Occupational Safety and Health Administration), at www.osha.gov and the State of California’s OEHHA (Office of Environmental Health Hazard Assessment) at www.oehha.org. Consumer education is important since the chemicals and substances on the list are found in our daily lives. Most consumers are aware that products present safety and health risks, when improperly used, handled and maintained.

⚠ WARNING

If removal of the blower assembly is required, all switches supplying power to the equipment must be disconnected and locked so the field power wires can be safely removed from the blower assembly. Failure to do so can cause electrical shock resulting in personal injuring or death.

Make sure the blower motor support is tight (3-motor mount bolts), then check if the wheel is secure to motor shaft before operating unit.



The first 6 inches of supply air plenum and ductwork must be constructed of sheet metal as required by NFPA 90B. The supply air plenum or duct must have a solid sheet metal bottom directly after the air handler unit with no openings, registers or flexible air ducts located in it. If flexible supply air ducts are used, they may be located only in the vertical walls of rectangular plenum, a minimum of 6 inches from the solid bottom. Metal plenum of duct may be connected to the combustible floor base, if not, it must be connected to the unit supply duct exposed to the supply air opening from the down-flow unit.

Exposing combustible (non-metal) material to the supply opening of a down-flow unit may cause a fire resulting in property damage, personal injury or death.

⚠ WARNING

FLAMMABLE REFRIGERANT!

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

The appliance shall be stored in a room that does not have continuously operating ignition sources (for example: open flames, an operating gas appliance or an operating electric heater).

Do not pierce or burn the unit.

Be aware that refrigerants may not contain an odour.

SAFE HANDLING OF FLAMMABLE REFRIGERANT!

Be sure the air conditioner is grounded.In order to avoid electric shock, make sure that the unit is grounded and that the earth wire is not connected to a gas or water pipe, lightning conductor or telephone earth wire.

Do not operate the air conditioner with a wet hands.An electric shock may happen.

Do not operate the air conditioner when using a room fumigation - type insecticide.Failure to observe this precaution could cause the chemicals to become deposited in the unit,which could endanger the health of those who are hypersensitive to chemicals.

To avoid oxygen deficiency, ventilate the room sufficiently if equipment with a burner is used together with the air conditioner.

Arrange the drain hose to ensure smooth drainage. Incomplete drainage may cause wetting of thebuilding, furniture, etc.

Never touch the internal parts of the controller.Do not remove the front panel. Some parts inside are dangerous to touch, and machine troubles may occur.

Attention is drawn to the fact that additional transportation regulations may exist with respect to equipment containing flammable gas. The maximum number of pieces of equipment or the configuration of the equipment permitted to be transported together will be determined by the applicable transport regulations.

Signs for similar appliances used in a work area are generally addressed by local regulations and give the minimum requirements for the provision of safety and/or health signs for a work location.

Storage package protection should be constructed such a way that mechanical damage to the equipment inside the package will not cause a leak of the REFRIGERANT CHARGE.

The maximum number of pieces of equipment permitted to be stored together will be determined by local regulations.

Do not place appliances which produce open flame in places exposed to the air flow from the unit or under the indoor unit. It may cause incomplete combustion or deformation of the unit due to the heat.

Do not install the air conditioner in a location where flammable gas may leak out. If the gas leaks out and stays around the airconditioner, a fire may break out.

⚠WARNING

FLAMMABLE REFRIGERANT!

When repairing the refrigerating system, comply with the following precautions prior to conducting work on the system:

• Work shall be undertaken according to controlled procedures to minimize the risk of the presence of flammable gases or vapors while the work is being performed.

• All maintenance staff and others working in the local area shall be instructed on the nature of work being carried out. Work in confined spaces shall be avoided.

• The area shall be checked with an appropriate refrigerant detector prior to and during work, to ensure the technician is aware of potentially toxic or flammable environment. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e., non-sparking, adequately sealed or intrinsically safe.

• If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment shall be available and easily accessible. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

• When carrying out work in relation to a refrigerating system that involves exposing any pipe work, no sources of ignition shall be used in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repair, or removal and disposal of the unit, during which refrigerant can possibly be released into the surrounding space. Prior to beginning work, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be clearly displayed.

PERSONAL INJURY, FLAMMABLE REFRIGERANT!

Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substances which may corrode refrigerant containing components, unless the components are constructed of materials that are inherently resistant to corrosion or are suitably protected against corrosion.

Repair and maintenance of electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until the fault has been dealt with.

• That capacitors are discharged: this shall be done in a safe manner to avoid the possibility of sparking.

• That no live electrical components and wiring are exposed while charging, recovering or purging the system.

• That there is continuity of grounding.

⚠ WARNING

PERSONAL INJURY, FLAMMABLE REFRIGERANT!

Ensure that the area is in the open or that it is adequately ventilated before opening the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out. The ventilation should safely disperse any released refrigerant and preferably expel it externally into the surroundings.

Where electrical components are being changed, they shall be fit according to their purpose and to the correct specification. At all times the manufacturer's maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer's technical department for assistance. The following checks shall be applied to installations using flammable refrigerants:

• The actual refrigerant charge is in accordance with the room size within which the refrigerant containing parts are installed.

• The ventilation machinery and outlets are operating adequately and are not obstructed.

• If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.

• Equipment marking must remain visible and legible. Markings and signs that are illegible shall be corrected.

FLAMMABLE REFRIGERANT!

Sealed electrical components shall be replaced.

Intrinsically safe components must be replaced.

Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

Under no circumstances shall potential sources of ignition be used while searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

Electronic leak detectors may be used to detect refrigerant leaks but, in the case of flammable refrigerants, the sensitivity may not be adequate, or may need recalibration. (Detection equipment shall be calibrated in a refrigerant-free area.)

Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated for the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed. If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant which requires brazing is found, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.

Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

Examples of leak detection fluids are:

• bubble method,

• fluorescent method agents.

WARNING

FLAMMABLE REFRIGERANT!

When breaking into the refrigerant circuit to make repairs or for any other purpose conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration. The following procedure shall be adhered to:

- safely remove refrigerant following local and national regulations.
- evacuate.
- purge the circuit with inert gas.
- evacuate.
- continuously flush or purge with inert gas when using flame to open circuit, and.
- open the circuit.

The refrigerant charge shall be recovered into the correct recovery cylinders if venting is not allowed by local and national codes. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.

The outlet for the vacuum pump shall not be close to any potential ignition sources, and ventilation shall be available.

Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant they contain.

Cylinders shall be kept upright. Ensure that the refrigeration system is grounded prior to charging the system with refrigerant.

Label the system when charging is complete (if it is not already labeled).

Take extreme care not to overfill the refrigeration system.

Product damage, personal injury!

This outdoor unit must combine the indoor unit with refrigerant leak detection device.

These instructions are exclusively intended for qualified contractors and authorized installers. Work on the refrigerant circuit with mild flammable refrigerant in safety group A2L may only be carried out by authorized heating contractors.

These heating contractors must be trained in accordance with UL 60335-2-40, Section HH. The certificate of competence from an industry accredited body is required.

Work on electrical equipment may only be carried out by a qualified electrician.

Before initial commissioning, all safety – related points must be checked by the particular certified heating contractors. The system must be commissioned by the system installer or a qualified person authorized by the installer.

⚠ WARNING

FLAMMABLE REFRIGERANT!

Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended that all refrigerants are recovered safely. Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of reclaimed refrigerant. It is essential that electrical power is available before the task is commenced.

a. Become familiar with the equipment and its operation.

b. Isolate system electrically.

c. Before attempting the procedure ensure that:

- mechanical handling equipment is available, if required, for handling refrigerant cylinders.
- all personal protective equipment is available and being used correctly.
- the recovery process is supervised at all times by a competent person.
- recovery equipment and cylinders conform to the appropriate standards.

d. Pump down refrigerant system, if possible.

e. If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.

f. Make sure that the cylinder is situated on the scales before recovery takes place.

g. Start the recovery machine and operate it in accordance with the manufacturer's instructions.

h. Do not overfill cylinders. (No more than 80% volume liquid charge).

i. Do not exceed the maximum working pressure of the cylinder, even temporarily.

j. When the cylinders have been filled correctly and the process has been completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.

k. Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating the equipment contains flammable refrigerant.

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended that all refrigerants are removed safely.

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labelled for that refrigerant (i.e. special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

⚠WARNING

FLAMMABLE REFRIGERANT!

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of the flammable refrigerant. If in doubt, the manufacturer should be consulted. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition.

The recovered refrigerant shall be processed according to local legislation in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The compressor body shall not be heated by an open flame or other ignition sources to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Do not use the air conditioner for other purposes. In order to avoid any quality deterioration, do not use the unit for the cooling of precision instruments, food, plants, animals or works of art. Before cleaning, be sure to stop the operation, turn the breaker off or unplug the supply cord. Otherwise, electric shock and injury may occur.

To avoid electric shock or fire, make sure that a leak detector is installed. Never touch the air outlet or the horizontal blades while the swing flap is in operation. Fingers may be come caught or the unit may break down.Never put any objects into the air inlet or outlet. Objects touching the fan at high speed can be dangerous. Never inspect or service the unit by yourself. Ask a qualified service person to perform this task.

Do not dispose of this product as unsorted municipal waste. This waste should be collected separately for special treatment. Do not dispose of electrical appliances as unsorted municipal waste. Use separate collection facilities. Contact your local government for information regarding the connection systems available.

If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, hazardous to one’s health and well-being.

To prevent refrigerant leak, contact your dealer.

When the system is installed and operates in a small room, it is required to maintain the concentration of the refrigerant below the limit, in case a leak occurs. Otherwise, oxygen in the room may be affected, resulting in a serious accident.

The refrigerant in the air conditioner is safe and normally does not leak.If the refrigerant leaks into the room and encounters the fire of a burner, a heater or a cooker, a harmful gas could be released.

Turn off any combustible heating devices, ventilate the room, and contact the dealer where the unit was purchased.

Do not use the air conditioner until a service person confirms that the refrigerant leak is repaired.

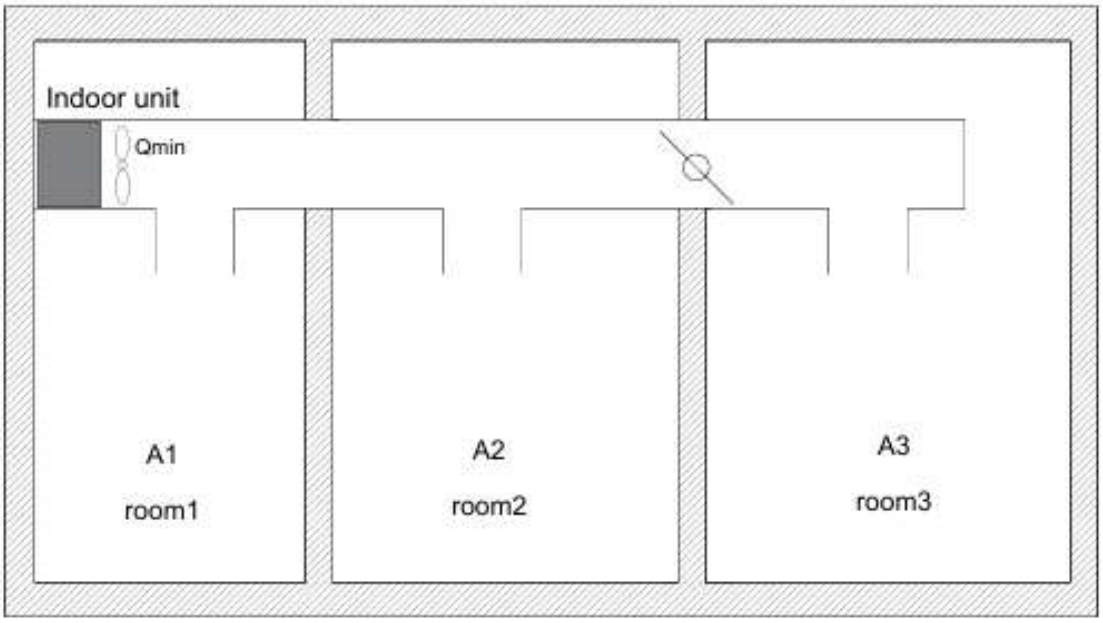
Keep ventilation openings clear of obstruction

⚠ WARNING

ROOM SIZE RESTRICTION

The appliances are connected via an air duct system to one or more rooms, the bottom of the air outlet of the air duct in the room should be at a height ≥7.3ft/2.2m from the floor. In UL/CSA 60335-2-40, the R454B refrigerant belongs to mildly flammable refrigerants, which will limit the room area of the system service. Similarly, the total amount of refrigerant in the system should be less than or equal to the maximum allowable refrigerant charge, which depends on the room area serviced by the system.

Note: For minimum room areas at higher installation heights, see instructions (note is optional).
Installation method:



Make sure that the applied room space area TA is larger than the TAmin.

2. Model Reference & External Appearance

2.1 Model Reference

Refer to the following table to determine the specific indoor and outdoor unit model number of your purchased equipment.

Capacity (Btu/h)	Indoor Unit Model
24K	EAHDEN-24ABA
36k	EAHDEN-36ABA
48K	EAHDEN-48ABA
60K	EAHDEN-60ABA

Capacity (Btu/h)	Outdoor Unit Model
24K	EODA19H-2436ABA
36k	
48K	EODA19H-4860ABA
60K	

2.2 External Appearance

2.2.1 Indoor Unit (Air Handler)

2.2.2 Outdoor Unit (Top discharge)

3. Indoor Unit-Air Handler

3.1 Dimensional Drawings

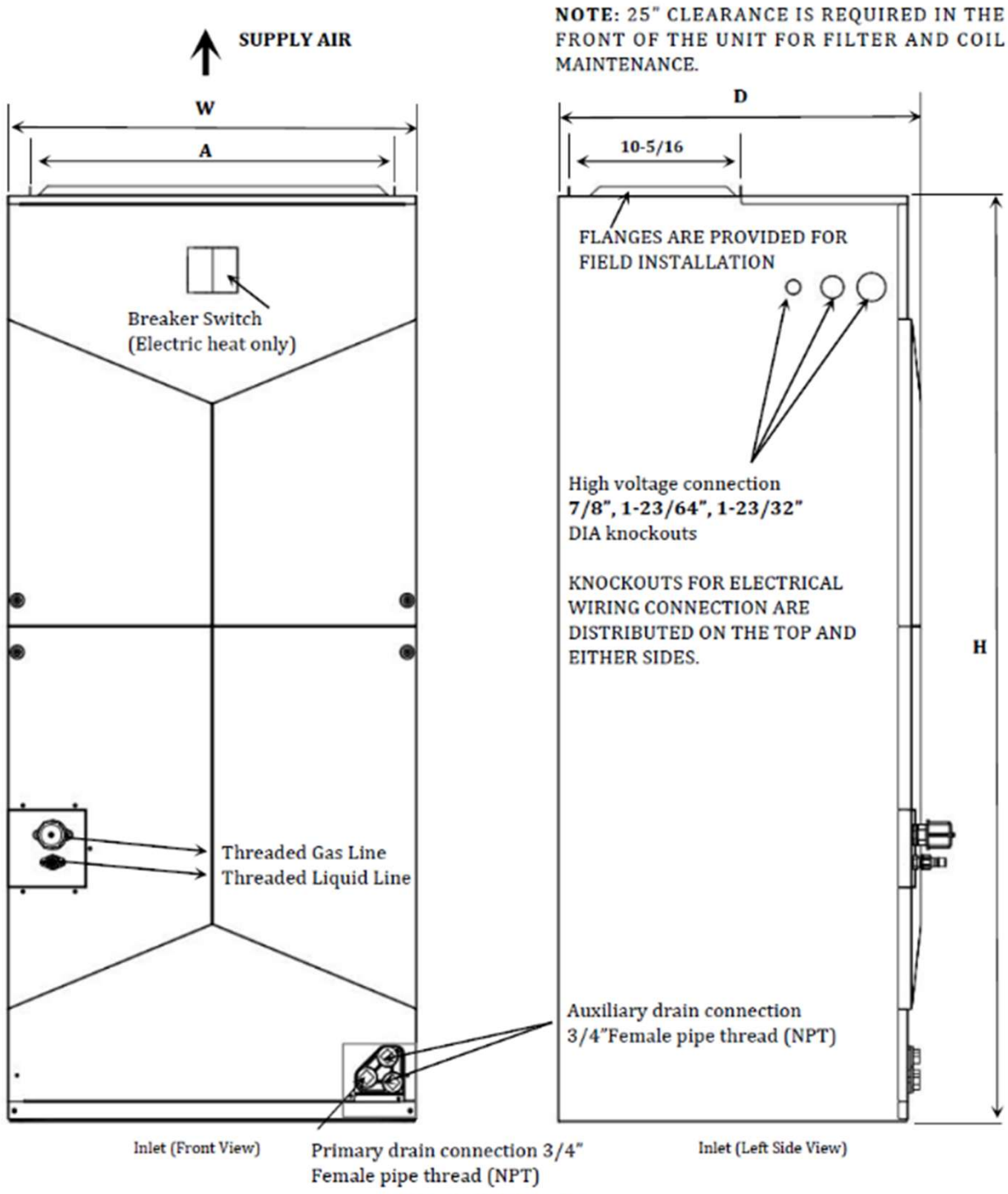
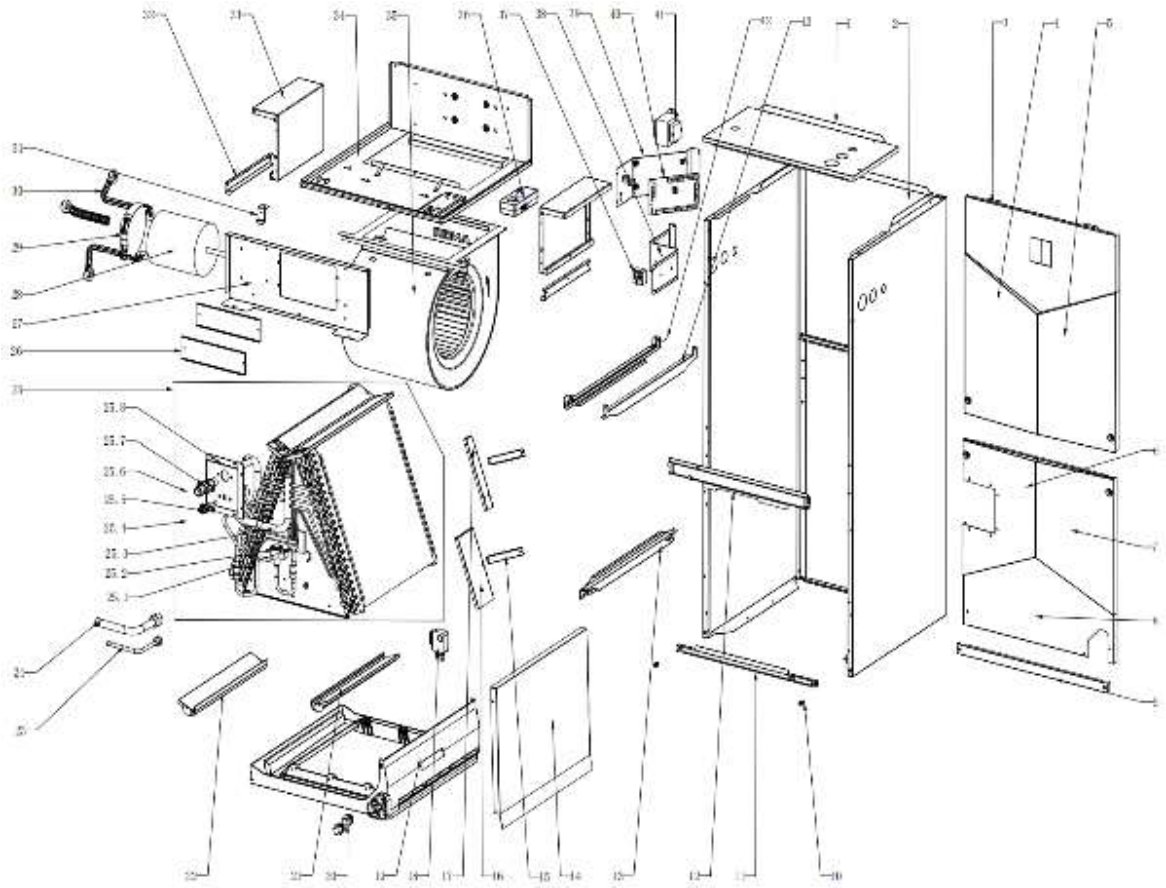


Figure 2-1 Unit Dimensions

Model	Dimensions (in.)					
	H	W	D	A	Liquid Line Connection	Gas Line Connection
24 / 36	47-1/2	21	22	19-1/4	3/8	3/4
48 / 60	56-1/2	24-11/16	22	22-3/4	3/8	7/8

3.2 Part list



#	Part Name	Quantity	Parts number	
			24/36K	48/60K
1	Electronic control cover plate	1	EAC2308200064	EAC2308200025
2	Chassis ass'y	1	EAC2308200001	EAC2308200026
3	Rear side panel ass'y	1	EAC2308200021	EAC2308200059
4	Rear side panel cover 1	1	EAC2308200083	EAC2308200075
5	Rear side panel cover 2	1	EAC2308200085	EAC2308200077
6	Front side panel ass'y	1	EAC2308200019	EAC2308200057
7	Front side panel cover 1	1	EAC2308200087	EAC2308200079
8	Front side panel cover 2	1	EAC2308200089	EAC2308200081
9	Filter cover	1	EAC2308200023	EAC2308200062
10	Screw bolt	2	EAC2319100045	
11	Cap nut	1	EAC2308200012	EAC2308200049
12	Flat washer	1	EAC2308200011	EAC2308200045

#	Part Name	Quantity	Parts number	
			24/36K	48/60K
13	Drainage pan supporter ass'y III	2	EAC2308200047	
14	Drainage pan II	1	EAC2308200018	EAC2316100115
15	Drainage pan fixing plate	2	EAC2308200066	
16	Drainage pan connecting plate 1	1	EAC2308200095	EAC2308200053
17	Drainage pan connecting plate 2	2	EAC2308200096	EAC2308200054
18	A2L refrigerant detection Kit	1	EAC2309100037	
19	Drainage pan I	1	EAC41308-000018	EAC41308-000019
20	Drainage pan clap	2	EAC41214-000783	
21	Evaporator base plate ass'y 1	1	EAC2308200105	EAC2308200103
22	Evaporator base plate ass'y 2	1	EAC2308200106	EAC2308200104
23	liquid adapter tube	1	EAC2312100092	
24	Gas adapter tube	1	EAC2312100093	EAC2312100094
25	Evaporator ass'y	1	EAC2312100096	EAC2312100095
25.1	Evaporator input pipe ass'y	1	EAC2400300040	EAC2400300033
25.2	EEV ass'y	1	EAC2312100057	EAC2312100055
25.2.1	EEV	1	EAC2312100007	EAC2312100101
25.2.2	EEV coil		EAC2309100027	
25.3	Evaporator output pipe ass'y	1	EAC2400300039	EAC2400300032
25.4	Nitrogen detection valve	1	EAC2319100049	
25.5	Flange joint ass'y 1	1	EAC2312100089	
25.6	Nitrogen warning valve	1	EAC2319100047	EAC2319100048
25.7	Flange joint ass'y 2	1	EAC2312100090	EAC2312100091
25.8	Cover plate ass'y	1	EAC2308200091	
26	E-part box ass'y	2	EAC2308200043	
27	Blower Upper baffle	1	EAC2400300102	EAC2400300060
28	Brushless DC Motor	1	EAC2323100006	EAC2323100007
29	Motor clamp	1	EAC2308300023	
30	Motor mounting bracket assembly	3	EAC2308300022	
31	Fan wheel fixing plate	2	EAC2308200044	
32	Blower side baffle 2	2	EAC2308200009	

#	Part Name	Quantity	Parts number	
			24/36K	48/60K
33	Blower side baffle 1	2	EAC2308200008	EAC2308200041
34	Blower fixing plate	1	EAC2400300100	EAC2400300058
35	Centrifugal fan	1	EAC2308200074	EAC2308200069
36	IoT device	1	EAC230903107	
37	Terminal block	1	ECON060506	
38	Terminal fixing plate	1	EAC2308200030	
39	Electrical Parts support board	1	EAC2308200063	
40	PCB ass'y	1	EAC230906001	
41	Transformer	1	ETFR020004	
42	Drainage pan supporter ass'y I	1	EAC2308200034	
43	Drainage pan supporter ass'y II	1	EAC2308200046	

3.3 Fan Performance

Airflow performance data is based on cooling performance with a coil and no filter in place. Check the Performance table for appropriate unit size selection. External static pressure should stay within the minimum and maximum limits shown in the table below in order to ensure proper airflow.

Airflow motor speed mode setting (SW1-1)					Variable airflow mode (Default)			2-stage airflow mode			
Model	Airflow setting	Airflow Dip-Switch			Max Airflow (CFM)	/ (CFM)	Min Airflow (CFM)	High Airflow (CFM)	Low Airflow (CFM)	Max available Static Pressure (in wc)	Remark
		SW2-1	SW2-2	SW2-3	W1/W2*	G*	/	Y2/W1/W2**	Y1/G**		
24K	Airflow 1	1	0	0	700	574	400	700	574	1.2	
	Airflow 2	1	0	1	760	623	400	760	623	1.2	
	Airflow 3	1	1	0	830	681	400	830	681	1.2	Default
	Airflow 4	1	1	1	880	722	400	880	722	1.2	
36K	Airflow 1	0	0	0	1050	735	420	1050	735	1.2	
	Airflow 2	0	0	1	1120	784	448	1120	784	1.2	
	Airflow 3	0	1	0	1200	840	480	1200	840	1.2	Default
	Airflow 4	0	1	1	1250	875	500	1250	875	1.2	
48K	Airflow 1	1	0	0	1450	1015	600	1450	1015	1.2	
	Airflow 2	1	0	1	1500	1050	600	1500	1050	1.2	
	Airflow 3	1	1	0	1550	1085	620	1550	1085	1.2	Default
	Airflow 4	1	1	1	1600	1120	640	1600	1120	1.2	
60K	Airflow 1	0	0	0	1650	1155	660	1650	1155	1.2	
	Airflow 2	0	0	1	1700	1190	680	1700	1190	1.2	
	Airflow 3	0	1	0	1750	1225	700	1750	1225	1.2	Default
	Airflow 4	0	1	1	1800	1260	720	1800	1260	1.2	

*In Variable airflow mode, when the heat pump is operational, the airflow will adjust automatically. When the auxiliary heat (W1/W2) is activated, the system will run at maximum airflow. However, when only the blower is operating (G), the airflow will be fixed.
**In 2-stage airflow mode, the airflow will adjust according to the settings of the stages.

Notes: The airflow performance is based upon cooling performance at 230V with no electric heater and no filter. In 115V, 208V, 230V has the same airflow performance, because it has a constant airflow motor, which maintains its constant airflow output within the range of use, of course, when the maximum load of the motor may decline.

The air distribution system has the greatest effect on airflow. For this reason, the contractor should use only industry-recognized procedures to finish ductwork.

Heat pump systems require a specified airflow. Each ton of cooling requires between 300 and 450 cubic feet per minute (CFM). Duct design and construction should be carefully done. System performance can be lowered dramatically through bad planning or workmanship. Air supply diffusers must be selected and located carefully. They must be sized and positioned to deliver treated air along the perimeter of the space. Return air grilles must be properly sized to carry air back to the blower as well. Failure to follow these may cause abnormal noise and drafts.

The installers should balance the air distribution system to ensure proper quiet airflow to all rooms in the home. This ensures a comfortable living space.

3.4 Electrical Characteristics

Model Number	Voltage-Phase-Hz	Power Supply Wiring Gauge	Motor HP	Minimum Circuit AMPS	Fuse (A)
24/36K	208/230V~1Ph~60Hz	14	1/2	5.4	15
	115V~1Ph~60Hz		1/2	8	15
48/60K	208/230V~1Ph~60Hz	14	1	9.8	15
	115V~1Ph~60Hz		1	14.4	20

3.5 Electric Heat Data

Heater Kit Model	Nominal Power	Power		HEATER AMPS		MIN.CICUIT AMPS		MAX. FUSE OR BREAKER (HACR) AMPS	
	240	230	208	230	208	230	208	230	208
EHK05B	5	4.6	3.8	20	18.1	25	23	30	25
EHK08B	7.5	6.9	5.6	30	27.1	38	34	40	35
EHK10B	10	9.2	7.5	40	36.2	50	46	60	50
EHK15B	10+5	9.3+4.6	7.5+3.8	40+20	36.2+18.1	50+25	46+23	46+30	50+25
EHK20B	10+10	9.2+9.2	7.5+7.5	40+40	36.2+36.2	50+50	46+46	60+60	50+50

Electric heat kits are suitable for air handler multiple position installation.

Safety Cautions All electric work must be performed by qualified personnel.

EHK series is designed and approved to be installed in the EAHATN series air handlers.

- Check the EHK label to confirm EHK size based on room load under lowest temperature ambient.
- Inspect all porcelain in insulators for breakage and the intact of heater element wire. Contact local distributor immediately if there is any occurred damage.

WARNING

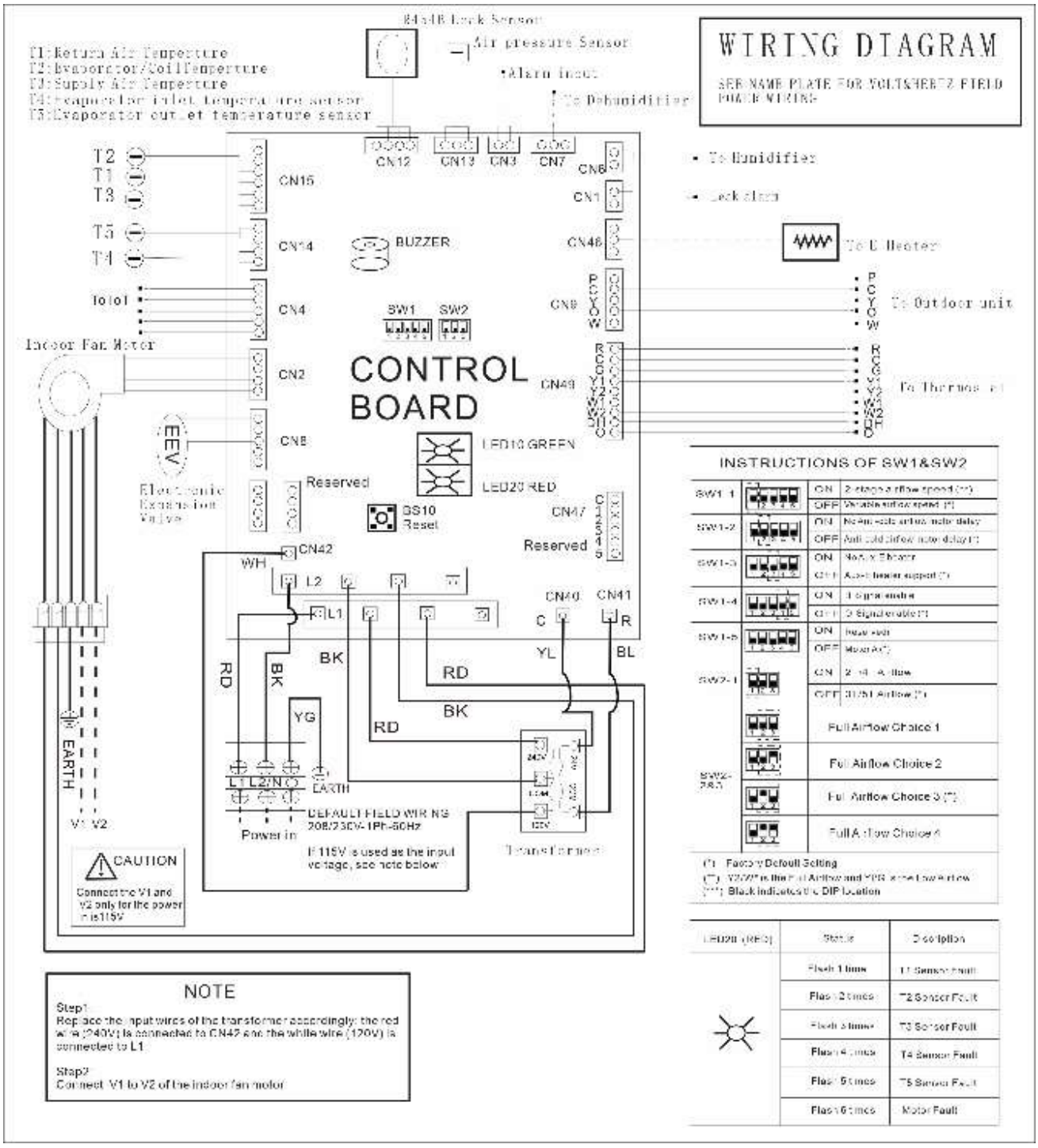
•Disconnect all external power supplies before performing installation and servicing. Turn off accessory heater power switch if applicable. Failure to do so may cause serious injury.

•EHK must be properly grounded and use copper supply wires.

•Make sure to follow national electric code and local regulations.

•When installing it in an enclosed area such as a garage, heater elements should have a minimum clearance of 18'' from the floor to insure the proper ventilation.

3.6 Electrical Wiring Diagrams



Indoor unit Wiring Diagram

3.7 Indoor Blower Control Function

3.7.1 Airflow motor speed mode

Model	Airflow motor speed mode setting by SW1		Remark
	SW1-1	Airflow motor mode setting	
All	ON	2-stage airflow mode	/
	OFF	Variable airflow mode	Default

The unit supports the 2-stage fan control which requires a two-stage thermostat (Y1/Y2) and the variable speed control by Y1. Variable airflow mode is only compatible with ECOER inverter outdoor units. The two-stage mode is compatible with both ECOER outdoor units and other outdoor units.

3.7.2 Anti-cold airflow delay in heating

Model	Anti-cold airflow delay setting in heating by SW1		Remark
	SW1-2	Anti-cold airflow delay	
All	ON	Disable	/
	OFF	Enable	Default

Model	Type	Delay entry meets the conditions	Action	Remark
All	Enter	Heating start or heating operation & The coil temperature is lower than 87°F & W*=off	Fan motro delayed start,or running low speed when fan motor is on.	/
	Quit	Heating stops， or The coil temperature is more than 95°F, or W*=on	Return to normal fan speed	/

The unit supports the fan motor delay in heating according to the coil temperature.
This function requires that the DIP switch of SW1-2 need be set to the OFF by default, it can be canceled by setting of SW1-2=ON .

3.7.3 Aux-E heater support

Model	Aux-E heater support setting by SW1		Remark
	SW1-3	Aux-E heater support setting	
All	ON	Disable	/
	OFF	Enable	Default

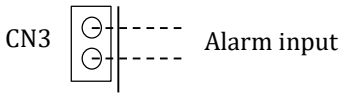
Aux-E heater support is enabled by default, the fan motor will shut off in defrosting when it is disable.

3.7.4 O/B signal support

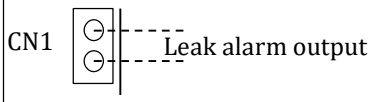
Model	O/B signal support setting by SW1		Remark
	SW1-4	Airflow motor speed setting	
All	ON	B signal enable	/
	OFF	O signal enable	Default

The unit supports the O/B signal setting by SW1.The O/B selection must match the thermostat settings..

3.7.5 Alarm input

Supports alarm input to shut down the HVAC system. When the CN3 receives a 24v alarm input signal, the indoor unit shuts down all control components.	

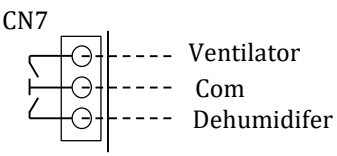
3.7.6 Lackage Alarm output

An alarm output(CN1) can be utilized if actions are required when a fault is present. This is a passive outlet port, so you will need to input a voltage signal (24v). The relay is normally-open for normal operation, and closed when a fault condition is active.	

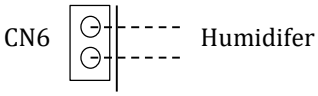
3.7.7 Lackage Alarm Sound

When the R454B leaks or the leak sensor fails, the indoor unit is ventilated, the ODU stops running, and a continuous warning sound is emitted.	

3.7.8 Dehumidifier support **(For EST02 compatibility, the OB signal must be wired to the indoor unit to enable the dehumidification/humidification feature)**

When matched with the EST02 thermostat, the PCB supports control of the ventilator and dehumidifier. This is a passive outlet port, so you will need to input a voltage signal (24v). The relay is normally-open without demand, and closed with demand.	

3.7.9 Humidifier support **(For EST02 compatibility, the OB signal must be wired to the indoor unit to enable the dehumidification/humidification feature)**

When matched with the EST02 thermostat, the PCB supports control of the humidifier. When humidification is required, the CN6 terminal will output a 24v signal.	

4. Outdoor Unit

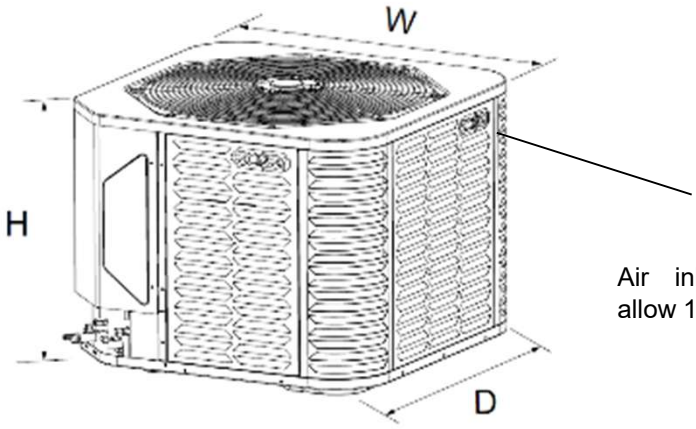
4.1 Dimensional Drawings

Please check the corresponding dimensional drawing according to the panel plate.

2436A

AIR DISCHARGE: ALLOW 60'' MINIMUM CLEARANCE

Allow a minimum of 12 in. clearance on one side of access panel to a wall and 24 in. on the other side of it.

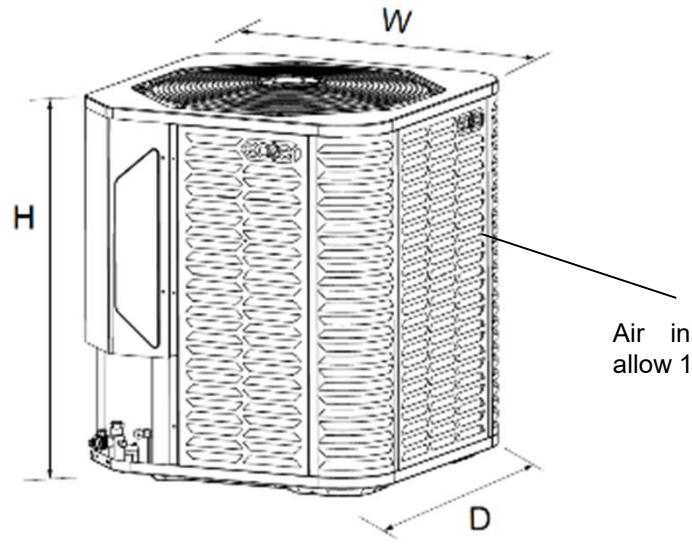


Air inlets louvered panels allow 12'' minimum clearance

4860A

AIR DISCHARGE: ALLOW 60'' MINIMUM CLEARANCE

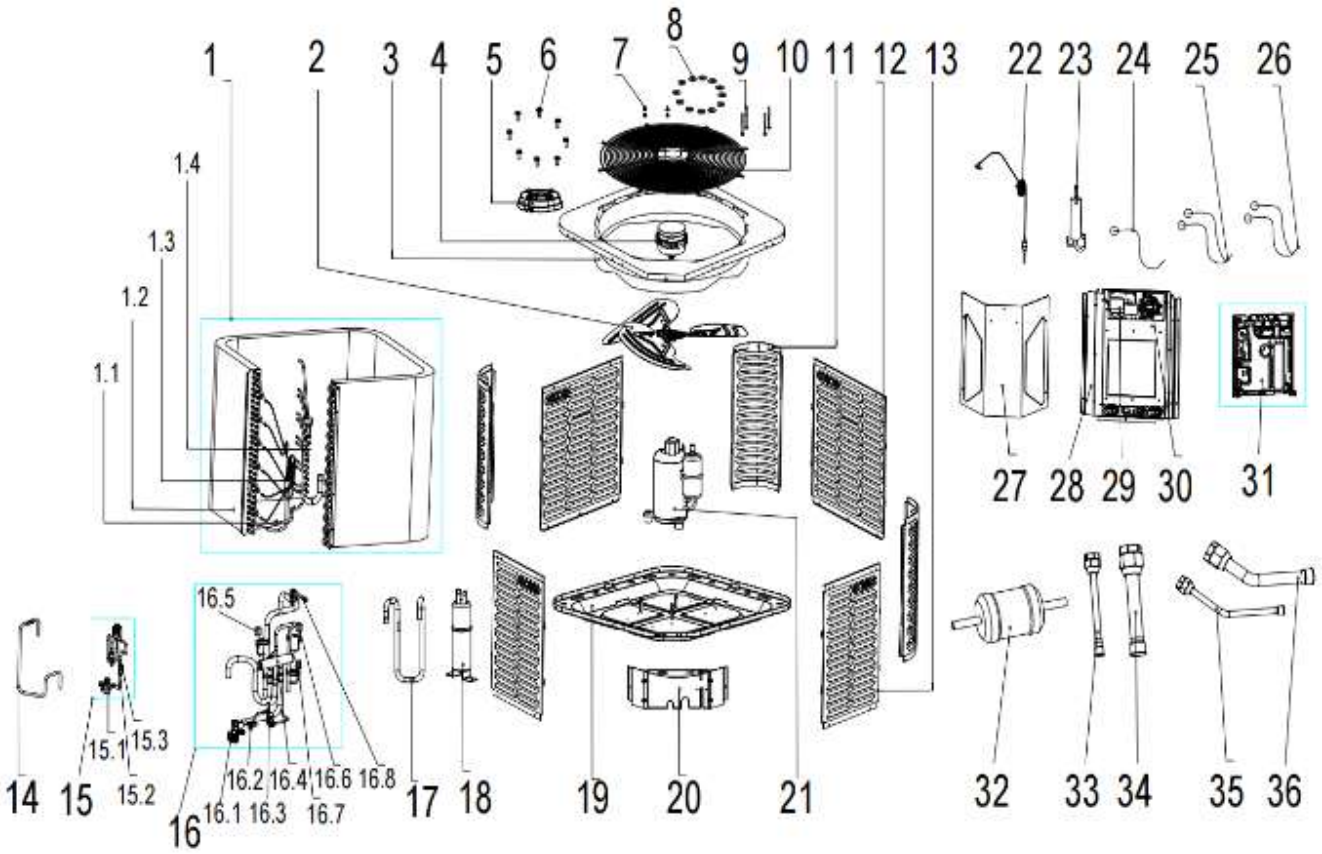
Allow a minimum of 12 in. clearance on one side of access panel to a wall and 24 in. on the other side of it.



Air inlets louvered panels allow 12'' minimum clearance

Model	Dimensions (Inch)		
	H	W	D
EODA19H-2436ABA	24-1/4	29-1/8	29-1/8
EODA19H-4860ABA	32-1/2	29-1/8	29-1/8

4.2 Part List



#	Part Name	Quantity	Parts number	
			2436A	4860A
1	Condenser ass'y	1	EAC2312100038	EAC2312100045
1.1	Condenser connection pipe ass'y	1	EAC2400000143	EAC2400000145
1.2	Condenser	1	EAC2400000144	EAC2400000146
1.3	Condenser outlet pipe ass'y	1	EAC2400000091	EAC2400000056
1.4	Condenser inlet pipe ass'y	1	EAC2400000115	EAC2400000043
2	Fan blade	1	EAC2308100008	
3	Top cover ass'y	1	EAC2308100029	
4	Brushless DC Motor	1	EAC2323100001	
5	Motor installation board ass'y	1	EAC2307000030	
6	Screw bolt	8	EAC2319100041	
7	Cap nut	4	EAC2319100015	
8	Flat washer	12	EAC2319100003	

#	Part Name	Quantity	Parts number	
			2436A	4860A
9	Motor mounting bolts	4	EAC2319100013	
10	Fan grille	1	EAC2308100037	
11	Supporting board	3	EAC2308100032	EAC2308100039
12	Side board ass'y I	2	EAC2308100033	EAC2308100040
13	Side board ass'y Ⅱ	2	EAC2308100034	EAC2308100041
14	Discharge pipe ass'y	1	EAC2312100040	EAC2312100047
15	High-pressure valve ass'y	1	EAC2312100062	EAC2312100066
15.1	Liquid block valve	1	EAC2312100063	
15.2	EEV	1	EAC2312100013	EAC2312100007
15.3	EEV solenoid coil	1	EAC2309100027	
16	Reversing valve ass'y	1	EAC2312100059	EAC2312100064
16.1	Gas block valve	1	EAC2312100060	EAC2312100065
16.2	Pipe joint ass'y	1	EAC2312100088	
16.3	The electromagnetic valve	1	EAC2312100005	
16.4.1	Four-way valve	1	EAC2312100003	
16.4.2	Reversing valve coil	1	EAC2309100008	
16.5	Low pressure sensor	1	EAC2309100004	
16.6	High pressure sensor	1	EAC2309100002	
16.7	High pressure switch	1	EAC2309100003	
17	Suction pipe ass'y	1	EAC2312100061	EAC2312100048
18	Gas-liquid separator	1	EAC2312100010	EAC2312100029
19	Chassis Parts	1	EAC2308100026	
20	Lower side plate	1	EAC2308100035	EAC2308100043
21	Compressor	1	EAC2315100003	EAC2315100004
22	Capillary ass'y	1	EAC2312100015	EAC2312100050
23	Oil separator	1	EAC2312100011	EAC2312100002
24	Discharge Temp. sensor	1	EAC2309100007	
25	Pipe Temp. sensor ass'y	1	EAC2309100006	
26	TS TA Sensor	1	EAC2309100005	

#	Part Name	Quantity	Parts number	
			2436A	4860A
27	Upper cover ass'y	1	EAC2308100038	EAC2308100044
28	Electronic control components	1	EAC2400000124	EAC2308100042
29	Noise filter assy（EMI）	1	EAC230904101	EAC230904102
30	PFC inductor	1	EIND080012	EIND080011
31	Motherboard component	1	EAC230904173	EAC230904171
32	Filter drier	1	EAC2312100097	
33	Liquid adapter tube	1	EAC2312100073	
34	Gas adapter tube	1	EAC2312100074	EAC2312100075
35	135° Liquid adapter tube	1	EAC2312100098	
36	135° Liquid adapter tube	8	EAC.2312100099	E.AC2312100100

4.3 Capacity Correction Factor for Height Difference

The system can extend the line sets flexibly within its limitation to fit the actual situation. However, it will cause cooling/heating capacity decrease because of the pressure loss by longer line length. Using the following correction factor to calculate the approximate capacity accordingly.

SUCTION LINE LENGTH/SIZE VS CAPACITY MULTIPLIER

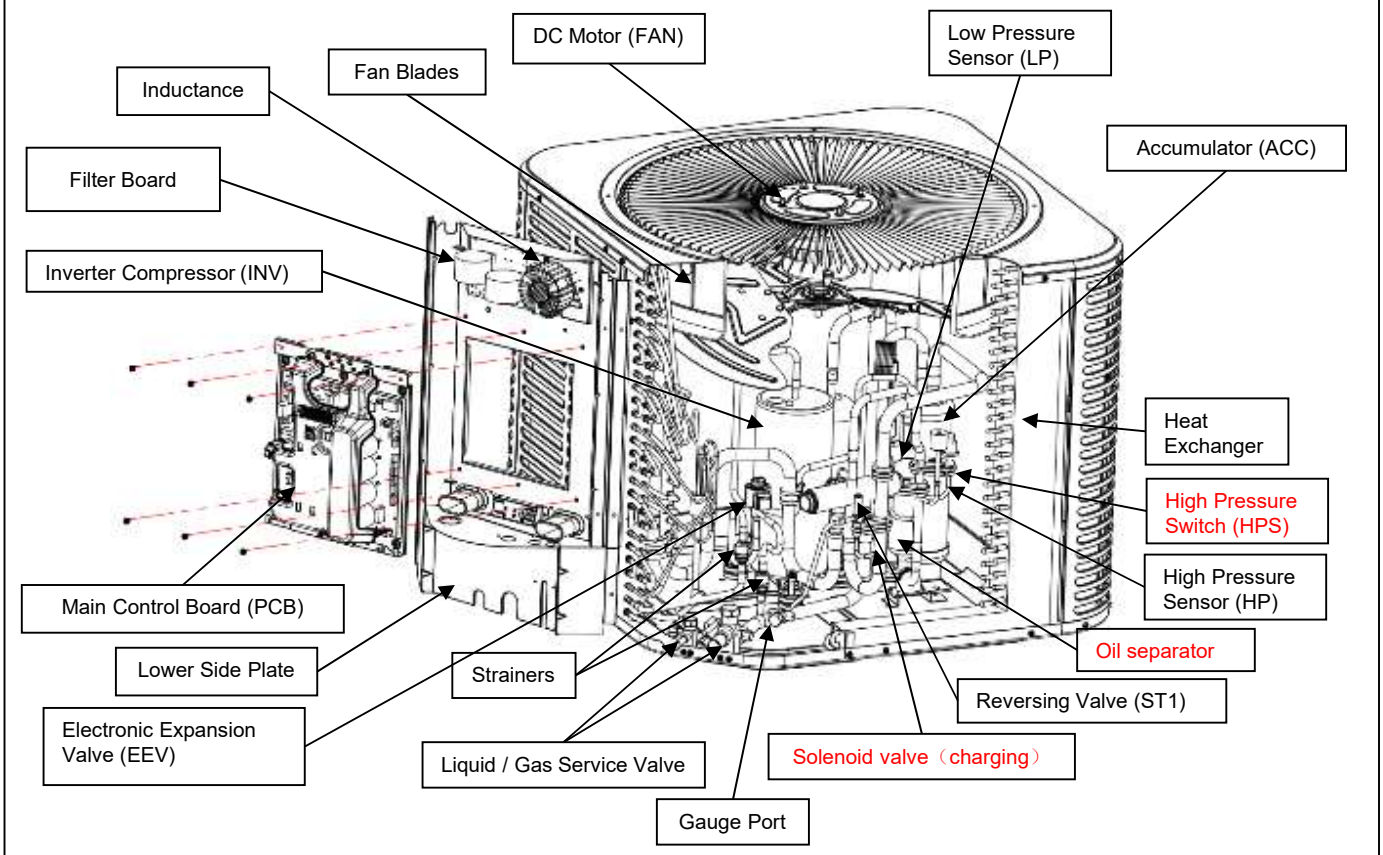
Model		2436A		4860A	
		2Ton	3Ton	4Ton	5Ton
Liquid Line Connection Size		3/8"	3/8"	3/8"	3/8"
Suction Line Connection Size		3/4"	3/4"	7/8"	7/8"
Suction Line Length/Size ***NOTE**		5/8" Optional	5/8" Optional	3/4" Optional	3/4" Optional
		3/4" Standard	3/4" Standard	7/8" Standard	7/8" Standard
25 feet	Optional	1.00	0.99	0.99	0.98
	Standard	1.00	1.00	1.00	1.00
50 feet	Optional	0.99	0.98	0.98	0.97
	Standard	0.99	0.99	0.99	0.99
100 feet	Optional	0.98	0.95	0.97	0.95
	Standard	0.99	0.98	0.98	0.97
150 feet	Optional	0.96	0.93	0.95	0.93
	Standard	0.97	0.96	0.96	0.95

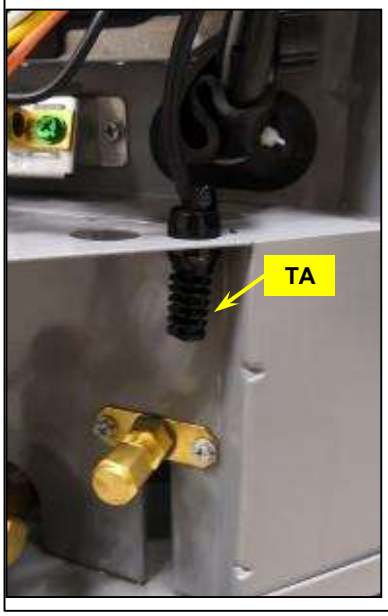
NOTE: It's not suggested to use suction line bigger than standard size shown above, in which will result poor oil return back to the inverter compressor.

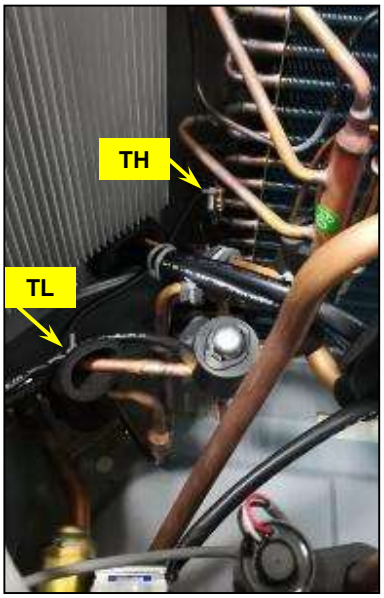
4.4 Refrigerant Circuit

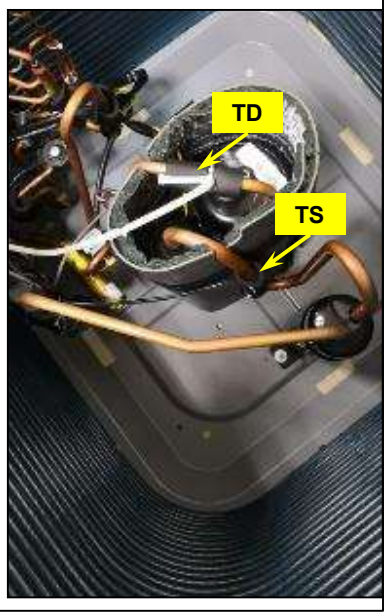
4.4.1 Functional Parts Layout of Condensing Units

EODA19H-2436ABA

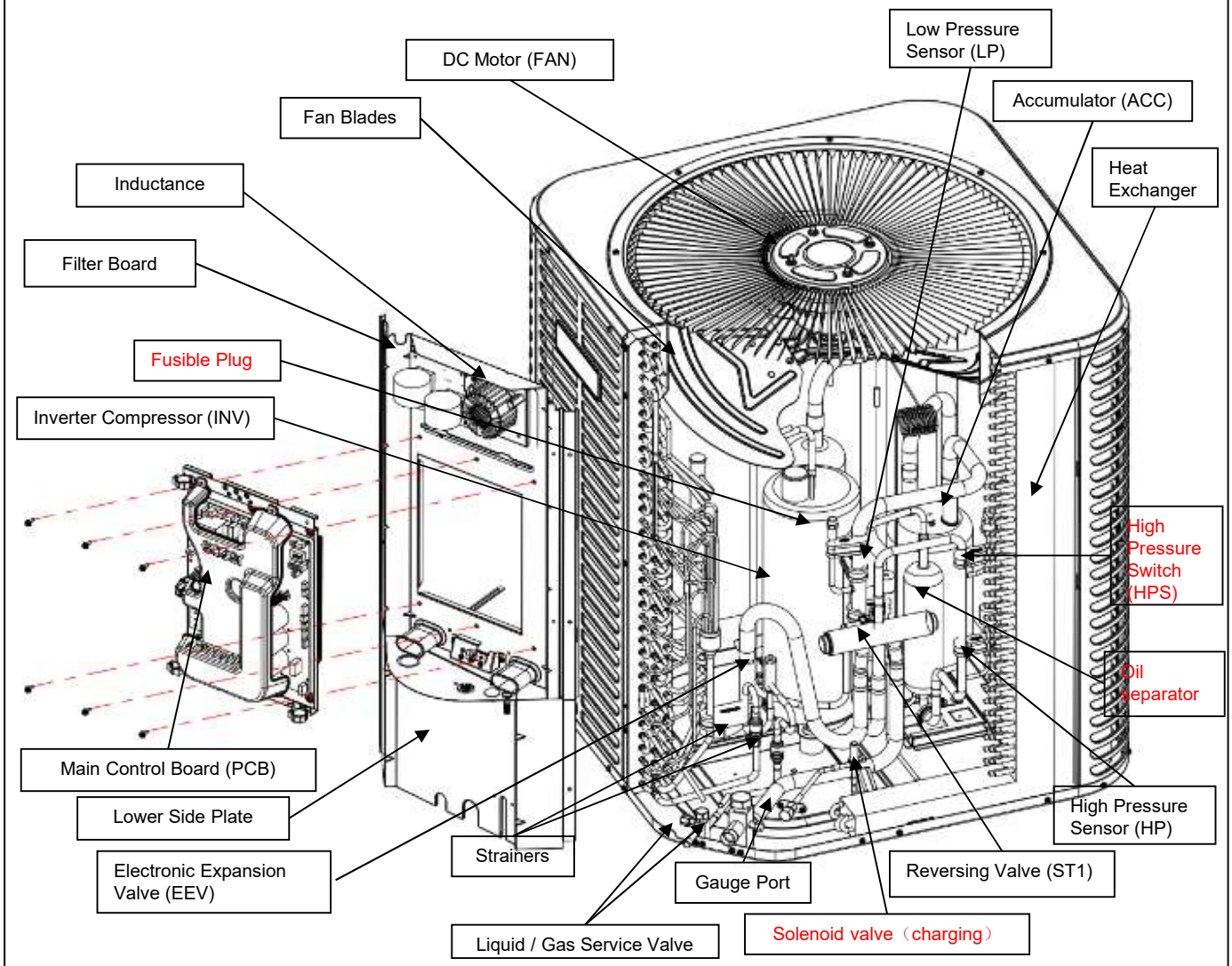


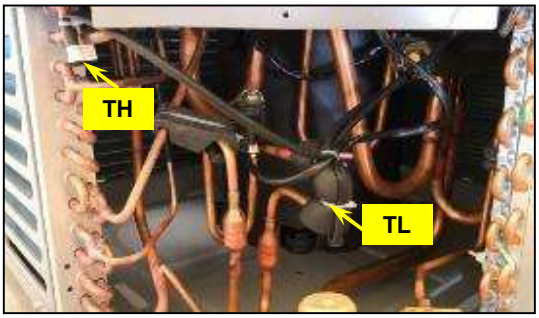


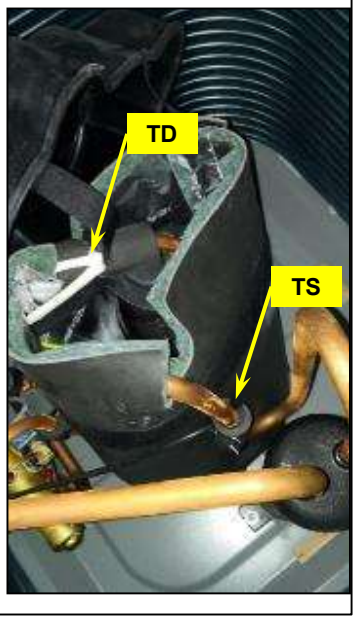




EODA19H-4860ABA



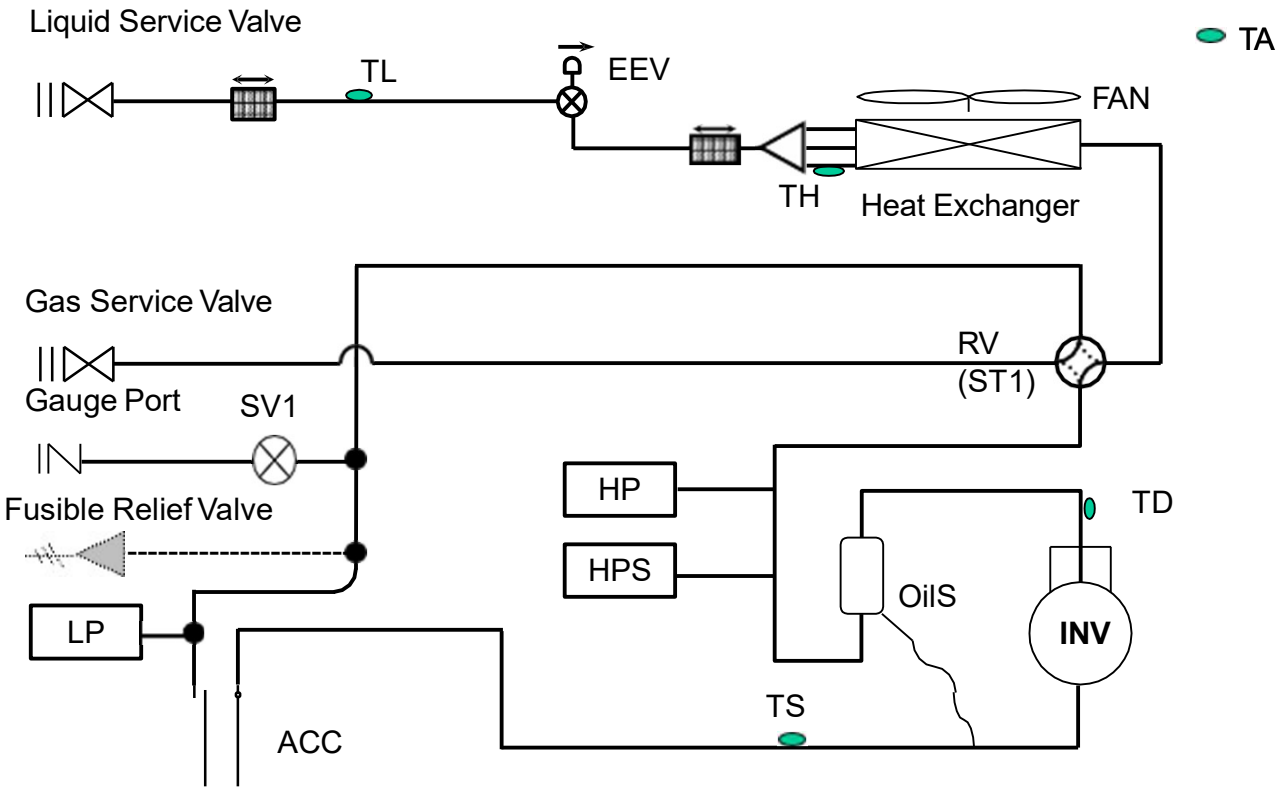




TIPS:
Remove screws to take away the lower side plate to access TH / TL sensors.

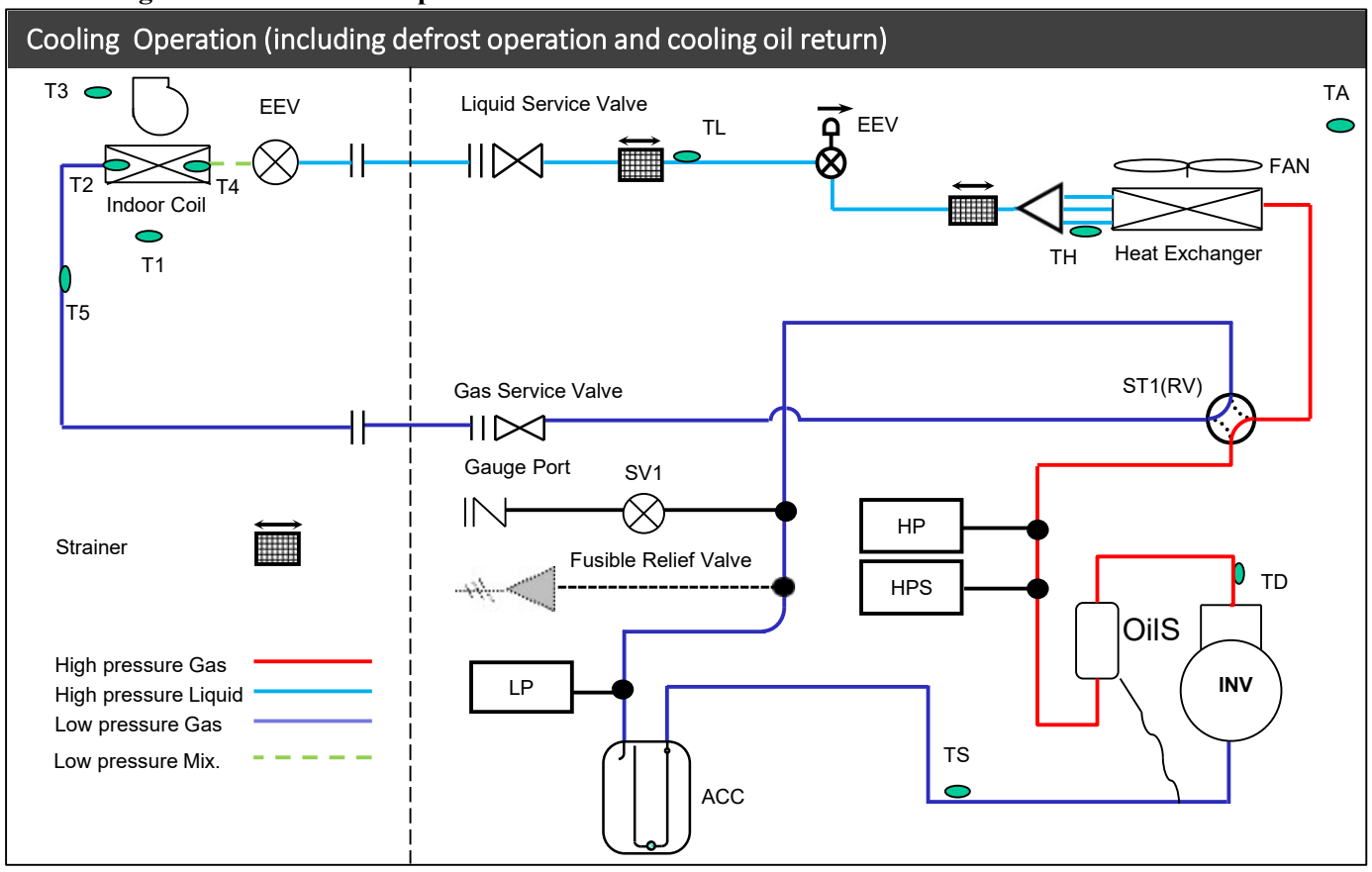
A slotted screwdriver may be required to open the plate from the condensing unit.

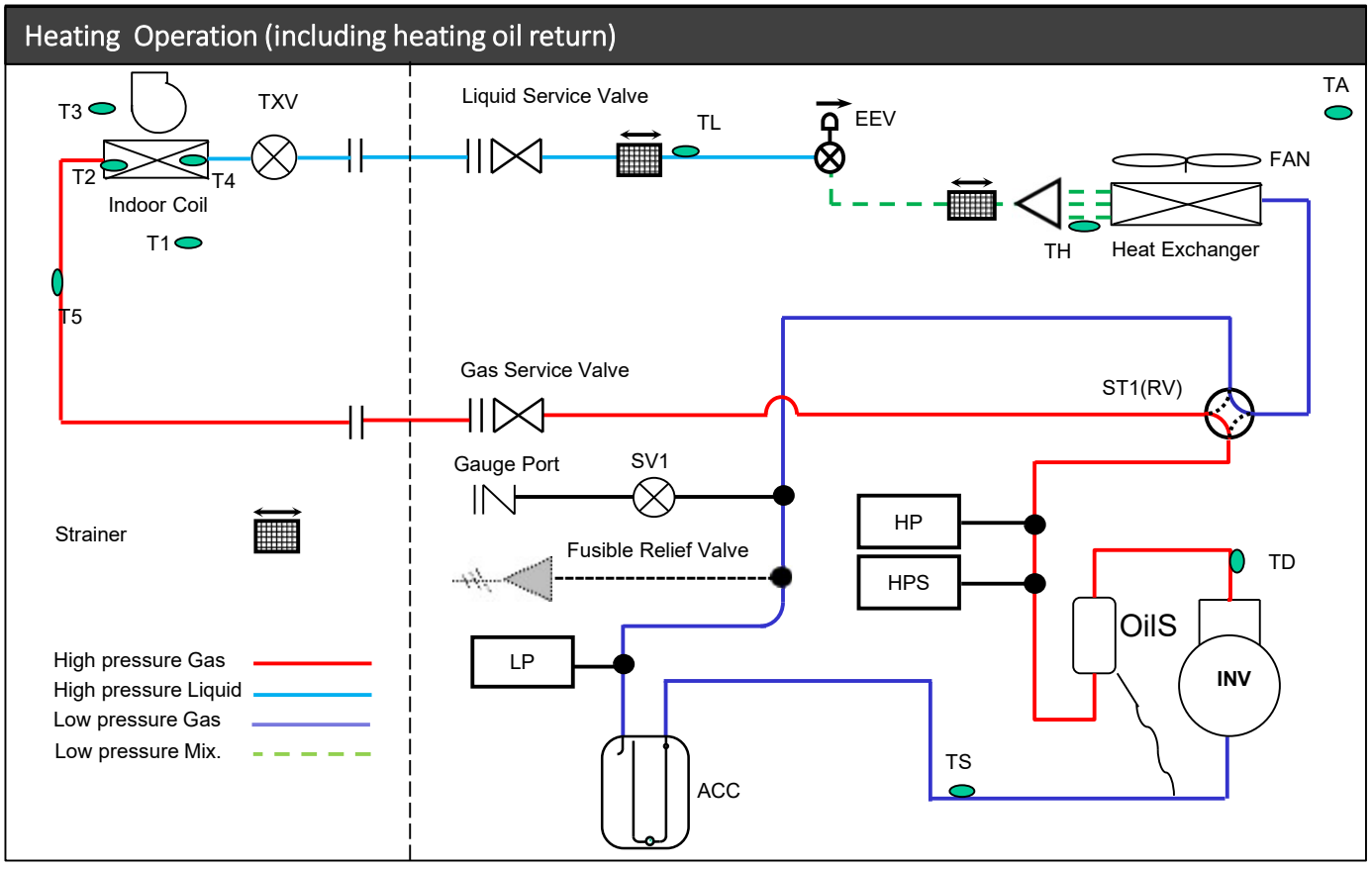
4.4.2 Major Components Functions



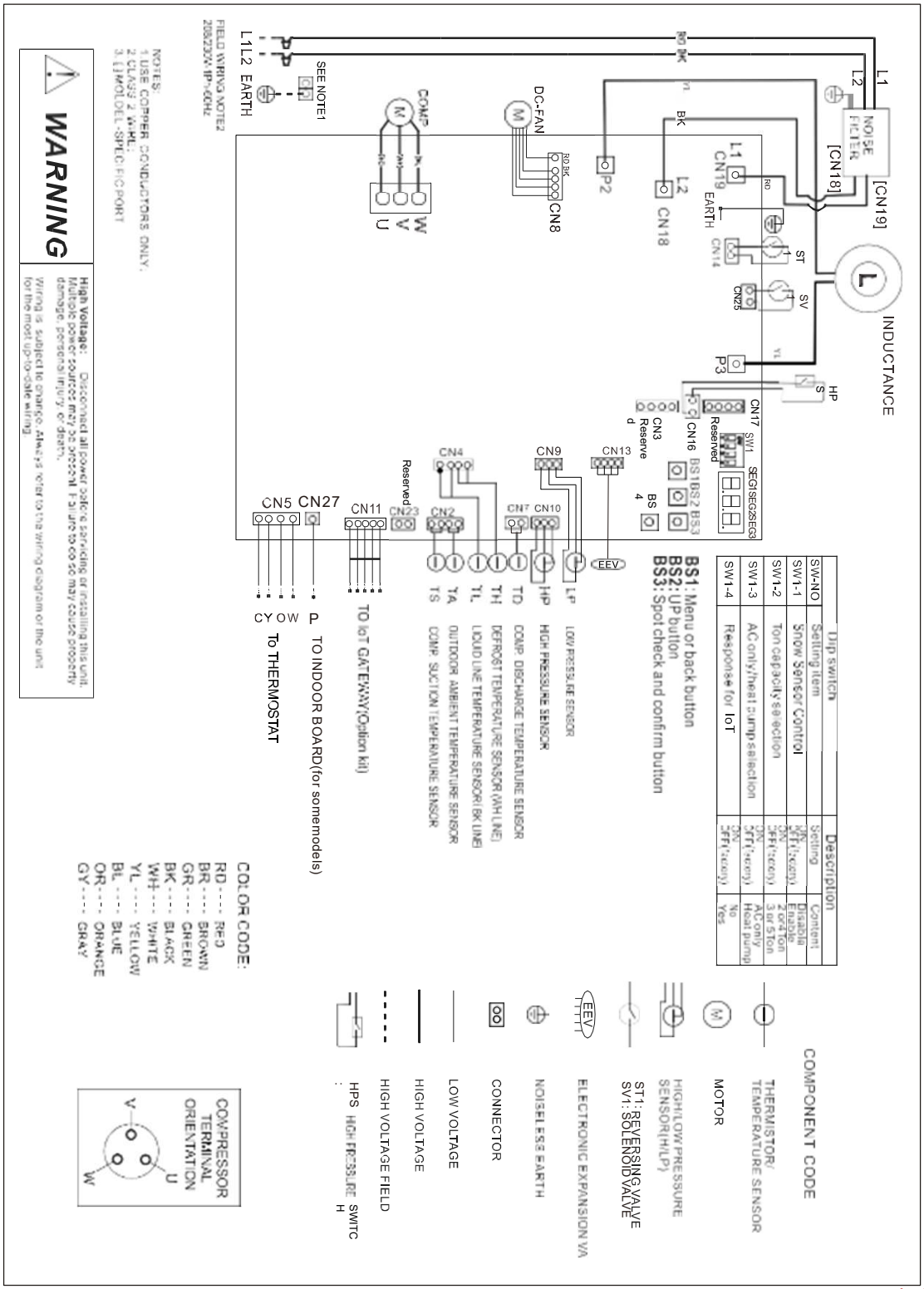
Name	Symbol	Function
Inverter compressor	INV	Adjusts refrigerant flow rate by changing the speed (RPS) based on objective pressure.
Oil separator	OilS	The compressor oil is collected and returned to the compressor.
Outdoor fan	FAN	Outputs heat exchanger capacity by adjusting the motor rotation speed based on operating pressure.
Electronic expansion valve	EEV	1) Fully open in cooling mode and defrost operation. 2) Control compressor discharge superheat in heating mode.
Reversing valve	RV (ST1)	Switches the operation mode between heating and cooling (including defrost control).
Solenoid valve 1	SV1	(Normally close) Control charging on and off when in charging mode.
Temperature sensor	TH	Uses to control defrost during heating operation.
	TA	Uses to detect outdoor air temperature and control fan speed.
	TS	Uses to detect compressor suction temperature and calculate compressor suction superheat (SSH).
	TL	Uses to detect liquid line temperature and calculate sub-cooling (SC).
	TD	Uses to detect compressor discharge temperature and calculate discharge superheat (DSH).
	TF	Uses to detect heat sink temperature of inverter module.
High pressure sensor	HP	Uses to detect high pressure.
Low pressure sensor	LP	Uses to detect low pressure.
Accumulator	ACC	Uses to store excess refrigerant.
Fusible Relief Valve	FRV	Release of refrigerant into the atmosphere (high temperature trigger) – only for some models.

4.4.3 Refrigerant Flow of Each Operation Mode

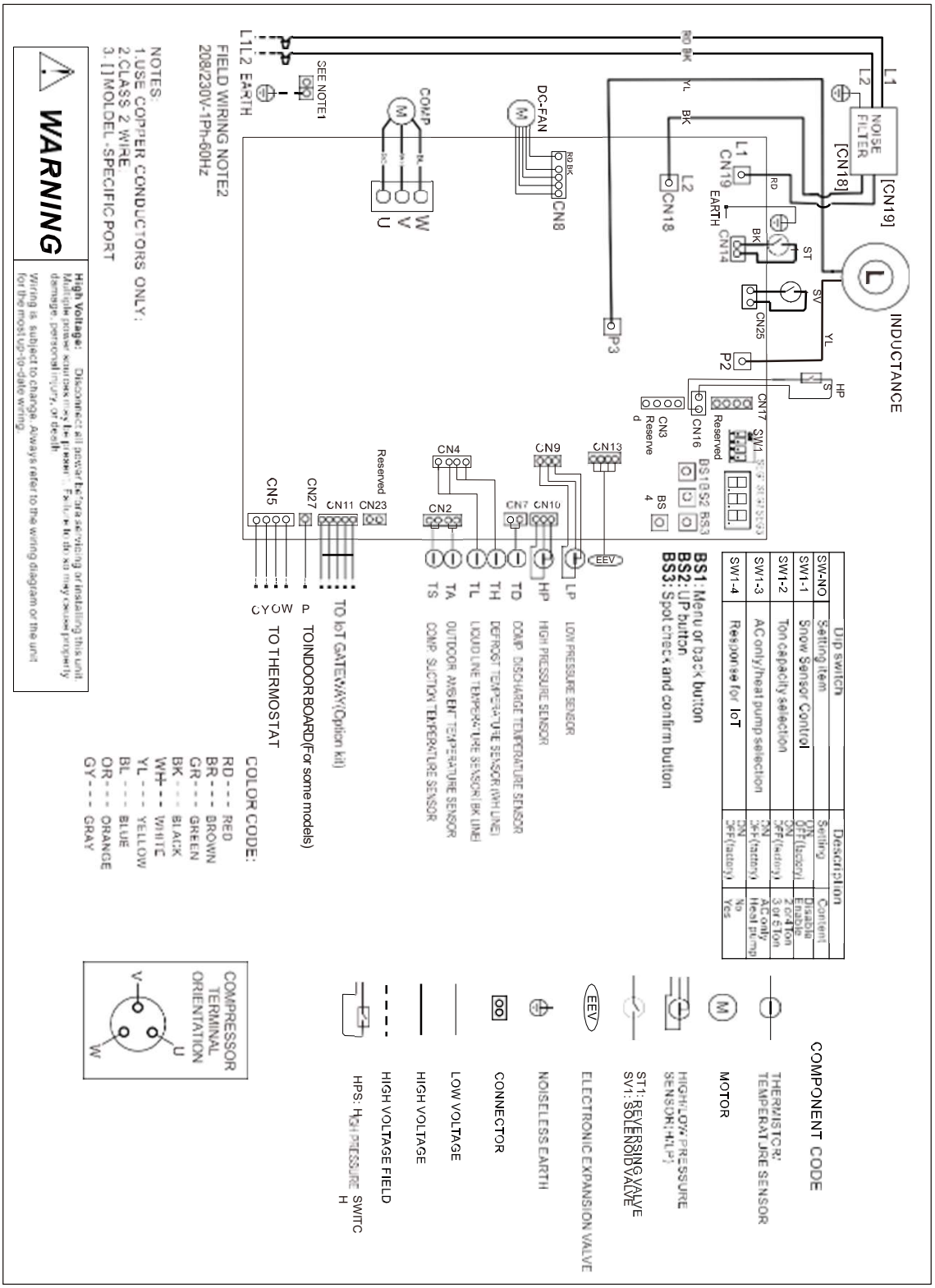




4.5 Electrical Wiring Diagrams



2436Model


L1
L2
NOISE FILTER
[CN19]
[CN18]
INDUCTANCE
L1 CN19
L2 CN18
EARTH
CN14
ST
SV
CN25
P2
P3
HP
CN17
SW1
CN16
Reserved
CN3 Reserved
BS1 BS2 BS3
BS 4
CN4
CN9
CN13
CN2
CN7
CN10
EEV
LP
HP
TD
TH
TL
TA
TS
CN5
CN27
CN11
CN23
Reserved
CYOW
P
TO IoT GATEWAY(Option kit)
TO INDOOR BOARD(For some models)
TO THERMOSTAT
SEE NOTE1
L1L2 EARTH
FIELD WIRING NOTE2
208/230V-1Ph-60Hz
COMP
DC-FAN
CN8
U
V
W
RD
BK
YL
Dip switch
SW-NO
Setting item
Description
Setting
Content
SW1-1
Snow Sensor Control
ON
OFF(factory)
Disable
Enable
SW1-2
Ton capacity selection
ON
OFF(factory)
2 or 4 Ton
3 or 5 Ton
SW1-3
AC only/heat pump selection
ON
OFF(factory)
AC only
Heat pump
SW1-4
Response for IoT
ON
OFF(factory)
No
Yes
BS1: Menu or back button
BS2: UP button
BS3: Spot check and confirm button
COMPONENT CODE
THERMISTOR/ TEMPERATURE SENSOR
MOTOR
HIGH/LOW PRESSURE SENSOR(HLP)
ST1: REVERSING VALVE
SV1: SOLENOID VALVE
ELECTRONIC EXPANSION VALVE
NOISELESS EARTH
CONNECTOR
LOW VOLTAGE
HIGH VOLTAGE
HIGH VOLTAGE FIELD
HPS: HIGH PRESSURE SWITCH
LOW PRESSURE SENSOR
HIGH PRESSURE SENSOR
COMP. DISCHARGE TEMPERATURE SENSOR
DEFROST TEMPERATURE SENSOR (WH LINE)
LIQUID LINE TEMPERATURE SENSOR(BK LINE)
OUTDOOR AMBIENT TEMPERATURE SENSOR
COMP. SUCTION TEMPERATURE SENSOR
COLOR CODE:
RD --- RED
BR --- BROWN
GR --- GREEN
BK --- BLACK
WH --- White
YL --- YELLOW
BL --- BLUE
OR --- ORANGE
GY --- GRAY
COMPRESSOR TERMINAL ORIENTATION
NOTES:
1.USE COPPER CONDUCTORS ONLY;
2.CLASS 2 WIRE
3.[ ]MOLDEL-SPECIFIC PORT
WARNING
High Voltage:
Wiring is subject to change. Always refer to the wiring diagram on the unit for the most up-to-date wiring.

4860Model

5. Installation

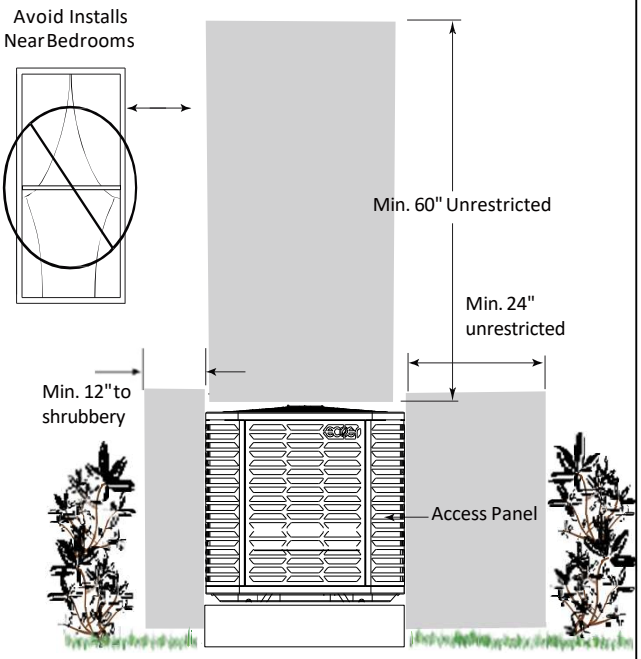
5.1 Outdoor unit installation

5.1.1 Installation Clearance Requirement

Ensure the top discharge area is unrestricted for at least **60 inches** above the unit.

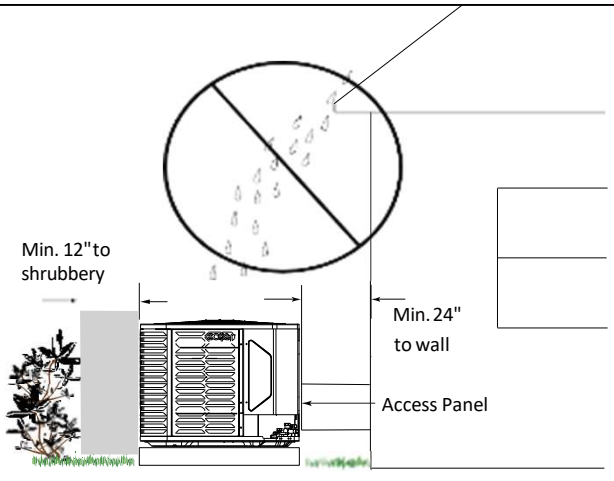
Do not locate condensing unit near bedrooms because normal operational sounds may be annoying. Position unit to allow adequate space for unobstructed airflow, wiring, refrigerant lines, and serviceability.

Allow a minimum of 12 in. clearance on one side of access panel to a wall and a minimum of 24 in. on the adjacent side of access panel. **Maintain a distance of 24 in. between units.**



Clearance requirement

Position unit so water, snow, or ice from roof or overhang cannot fall directly on unit.



Unit location

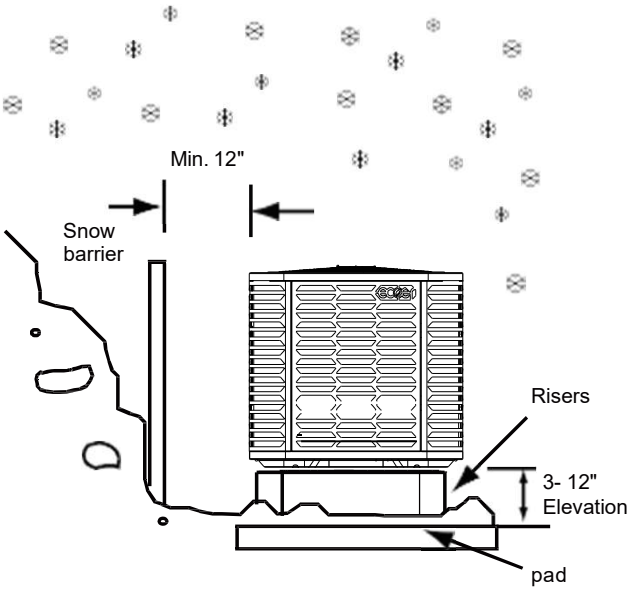
Cold Climate Considerations

Precautions must be taken for units being installed in areas where snow accumulation and prolonged below-freezing temperatures occur.

Elevate unit per local climate and code requirements.

- Where snowfall is anticipated, raise the unit above the base pad to prevent ice buildup and coil damage. Mount the unit high enough to be above the average accumulated area snowfall.
- If unit must be elevated because of anticipated snowfall, secure unit and elevating stand such that unit and/or stand will not tip over or fall off.

A snow drift barrier should be installed around the unit to prevent a build-up of snow on the unit sides.



Consideration to prevent refreezing

Snow Guard Kit Cautions

No kit shall damage the top panel of condensing unit.

- Main control board (MCB) will be damaged due to the rainwater flow into the control box.
- The condensing coil will be broken resulting in refrigerant leak.

In areas prone to blizzards and freezing rain, it is advisable to install a snow guard for added protection.

5.1.2 Position the Unit

When mounting the unit on a roof, be sure the roof will support the unit's weight obtained from nameplate.

Properly selected isolation is recommended to prevent sound or vibration transmission to the building structure. If elevating a unit on a flat roof, use 4" x 4" or equivalent stringers positioned to distribute unit weight evenly and prevent noise and vibration.

When installing the unit on a support pad, such as a concrete slab, consider the following:

- The pad must be 1~2" larger than the unit on all sides.
- The pad must be separated from any structure.
- The pad must be level.
- The pad must be high enough above grade to allow for drainage.
- The pad location must comply with National, State and Local codes.

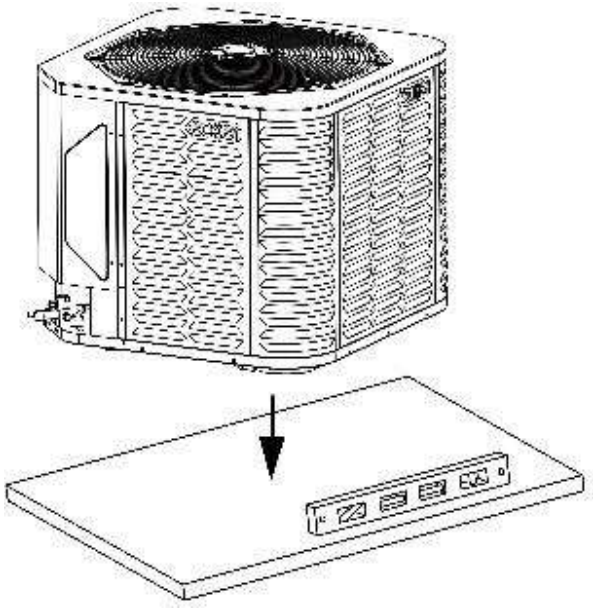


Fig 1 Position the unit on pad

IMPORTANT NOTE:
These instructions are intended to provide a method to tie-down unit to cement slab as a securing procedure for high wind areas. Check local codes for tie-down methods and protocols.

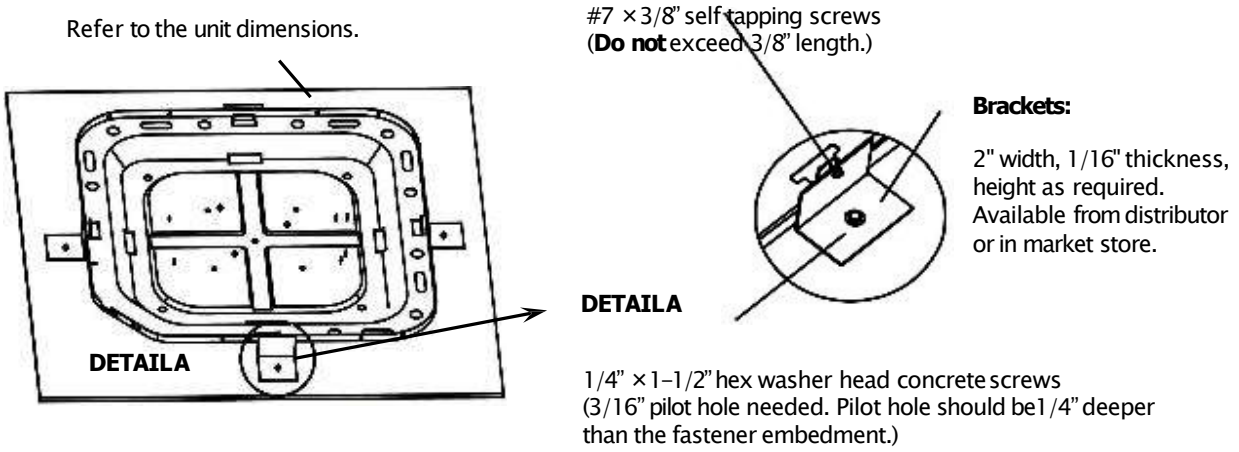


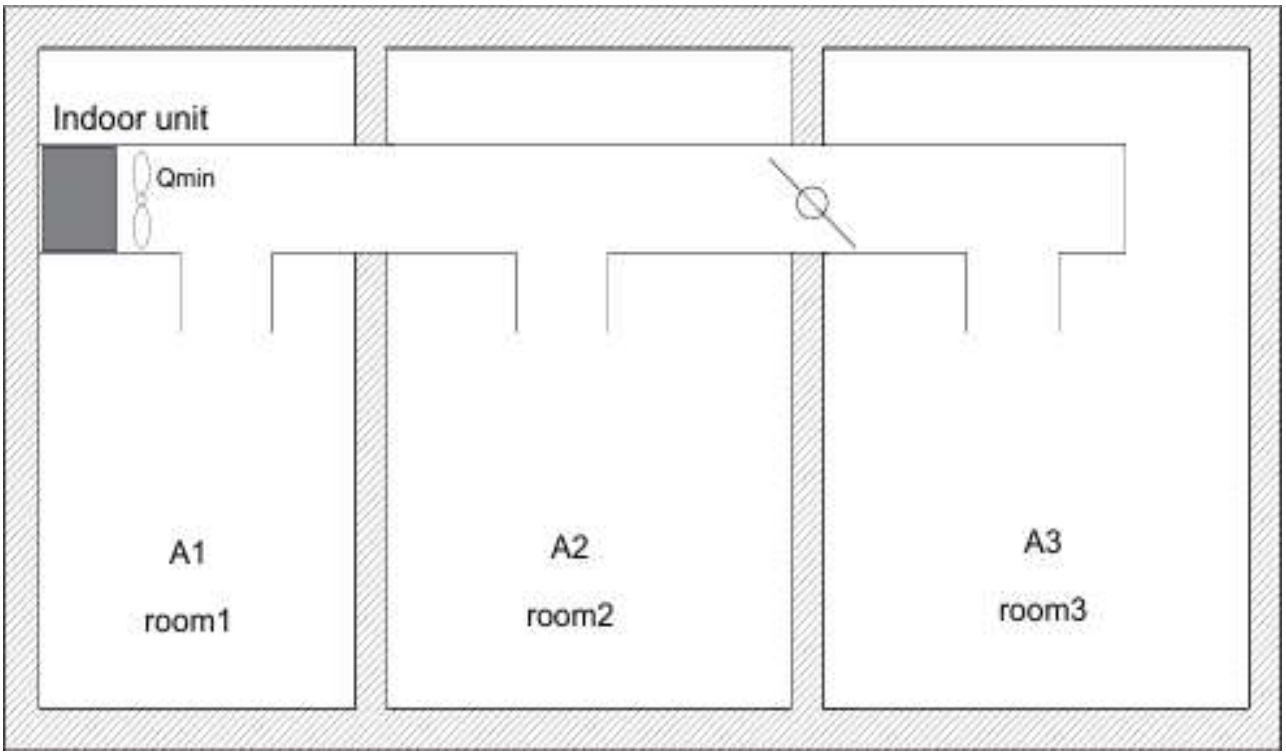
Fig 2 Fasten the condensing unit

5.1.3 Opening conditions for connected rooms

The appliances are connected via an air duct system to one or more rooms, the bottom of the air outlet of the air duct in the room should be at a height ≥7.3ft/2.2m from the floor. In UL/CSA 60335-2-40, the R454B refrigerant belongs to mildly flammable refrigerants, which will limit the room area of the system service. Similarly, the total amount of refrigerant in the system should be less than or equal to the maximum allowable refrigerant charge, which depends on the room area serviced by the system.

Note: For minimum room areas at higher installation heights, see instructions (note is optional).

Installation method:



Make sure that the applied room space area TA is larger than the TAmin.

5.1.4 R454B refrigerant charge amount and minimum room area

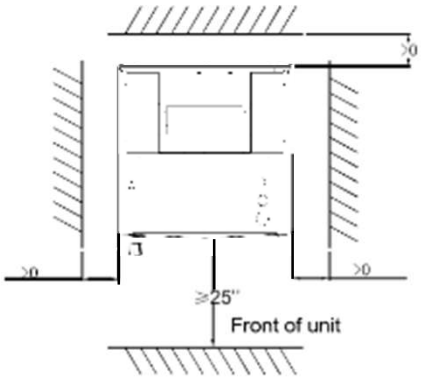
Mc [oz/kg]	TAmin [ft²/m²]	Mc [oz/kg]	TAmin [ft²/m²]	Mc [oz/kg]	TAmin [ft²/m²]	Mc [oz/kg]	TAmin [ft²/m²]
56.5/1.6	51/4.74	134/3.8	126/11.67	211.6/6.0	198/18.43	289.2/8.2	271/25.18
63.5/1.8	60/5.53	141.1/4	132/12.29	218.7/6.2	205/19.04	296.3/8.4	278/25.8
70.5/2	66/6.14	148.1/4.2	139/12.9	225.8/6.4	212/19.66	303.4/8.6	284/26.41
77.6/2.2	73/6.76	155.2/4.4	145/13.51	232.8/6.6	218/20.27	310.4/8.8	291/27.63
84.6/2.4	79/7.37	162.2/4.6	152/14.13	239.9/6.8	225/20.88	317.5/9.0	298/27.64
91.7/2.6	86/7.99	169.3/4.8	159/14.74	246.9/7.0	231/21.5	324.5/9.2	304/28.26
98.8/2.8	93/8.6	176.4/5	165/15.36	254/7.2	238/22.11	331.6/9.4	311/28.87
105.8/3	99/9.21	183.4/5.2	172/15.97	261/7.4	245/22.73	338.6/9.6	317/29.48
112.9/3.2	106/9.83	190.5/5.4	179/16.58	268.1/7.6	251/23.34	345.7/9.8	324/30.10
119.9/3.4	112/10.44	197.5/5.6	185/17.2	275.1/7.8	258/23.96	352.7/10.0	331/30.71
127/3.6	119/11.06	204.6/5.8	192/17.81	282.2/8.0	264/24.57		
Area formula	**TA**min is the required minimum room area in ft² / m² **M**c is the actual refrigerant charge in the system in oz/kg **h**inst is the height of the bottom of the appliance relative to the floor of the room after installation. **WARNING**: The minimum room area or minimum room area of conditioned space is based on releasable charge and total system refrigerant charge. Note: TA=A1+A2+A3+…+An (If there is a damper in the duct. When damper is open, the room area TA is the sum of all room area connected by ductwork. If it is closed, TA is the sum of the room areas before the damper.) Note: Calculate Mc by considering the length of pipeline connections,0.59 oz/ft.							

When the unit detects a refrigerant leak, the minimum airflow of the indoor unit is as follows: (The output air volume is based on the machine's full load air volume)

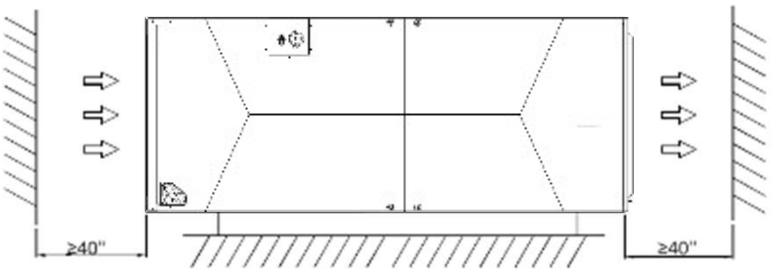
Model	24K	36K	48K	60K
QminA [m³/h(SCFM)]	791(466)	791(466)	1136(669)	1136(669)
Qmin [m³/h(SCFM)]	832(490)	1248(735)	1783(1050)	1953(1150)
Note: Qmin refers to the Minimum airflow of the indoor unit (see Table 5.1 for details), which is not less than QminA .				

5.2 Indoor Unit Installation(AHU)

5.2.1 Installation place



b) Vertical Position

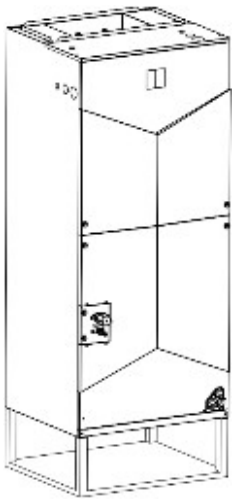


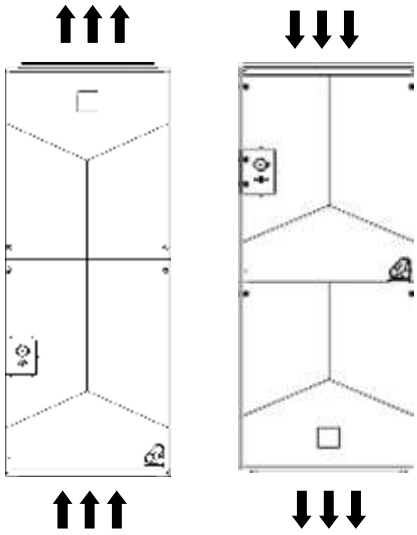
a) Horizontal Position

5.2.2 Install the main body

The unit may be installed in one of the upflow, downflow, horizontal left or horizontal right orientations.

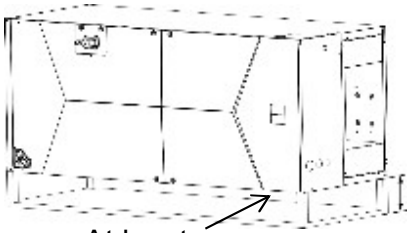
Vertical installation



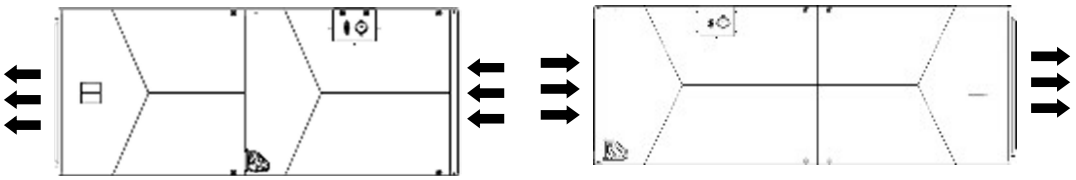


Upflow Downflow

Horizontal installation



NOTICE: For horizontal installation, a secondary drain pan (not supplied by the manufacturer) must be installed.



Horizontal left Horizontal right

5.2.3 Vertical up-flow and Horizontal right-flow

Vertical up-flow and horizontal right-flow configurations are the factory settings on all models.
If return air is to be ducted, install duct flush with floor. Use fireproof resilient gasket 1/8 to 1/4 in. thick between the ducts, unit and floor. Set unit on floor over opening.

IMPORTANT
Lightly tighten the drain connections so it won't leak.
Using excessive force may cause damage to the drain connections. Torque applied to drain connections should not exceed 10.ft.lbs.

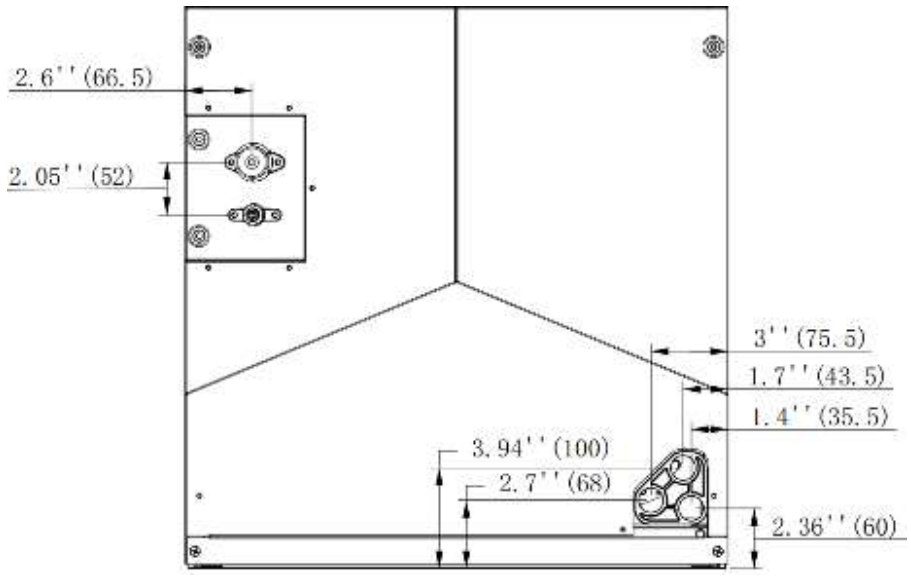


Figure 3-1 Dimensions for front connection coil

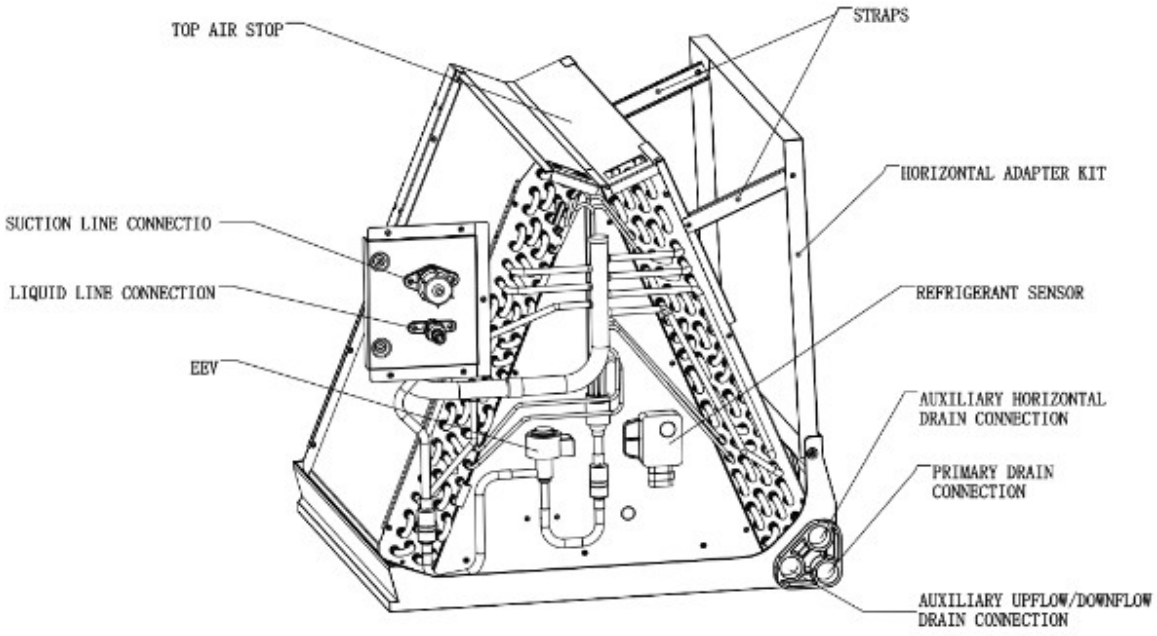


Figure Indoor coil and drain pan set-up

5.2.2 Down flow and Horizontal left instructions

STEP 1
Remove the screws from the upper and lower panels as shown in Figure 3-3.

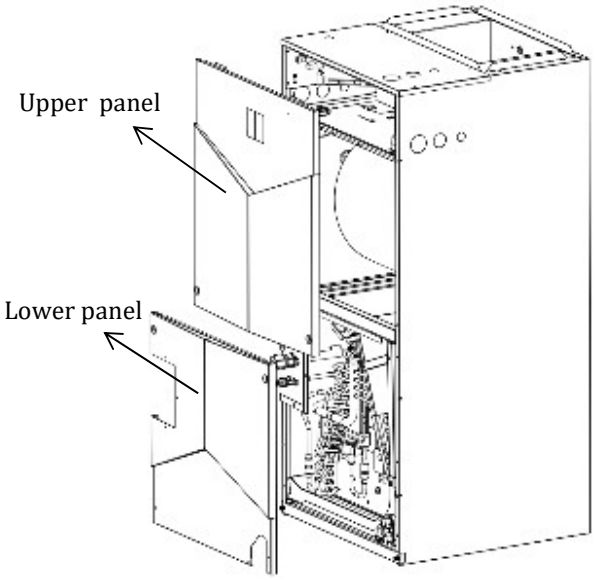


Figure 1

STEP 2
Remove the screws from the filter cover, support strip 1 and support strip 2 as shown in Figure 3-4.

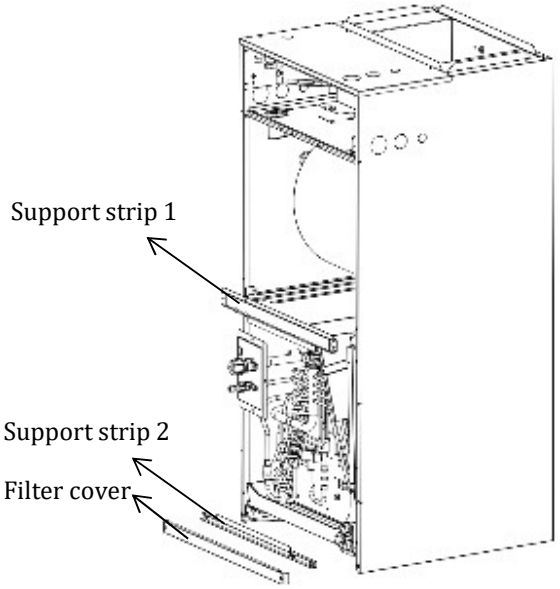


Figure 2

STEP 3
Detach the temperature sensor probe, EEV coil, and refrigerant sensor wire from the evaporator assembly, then take out the entire evaporator assembly. Shown in Figure 3-5/Figure3-6.

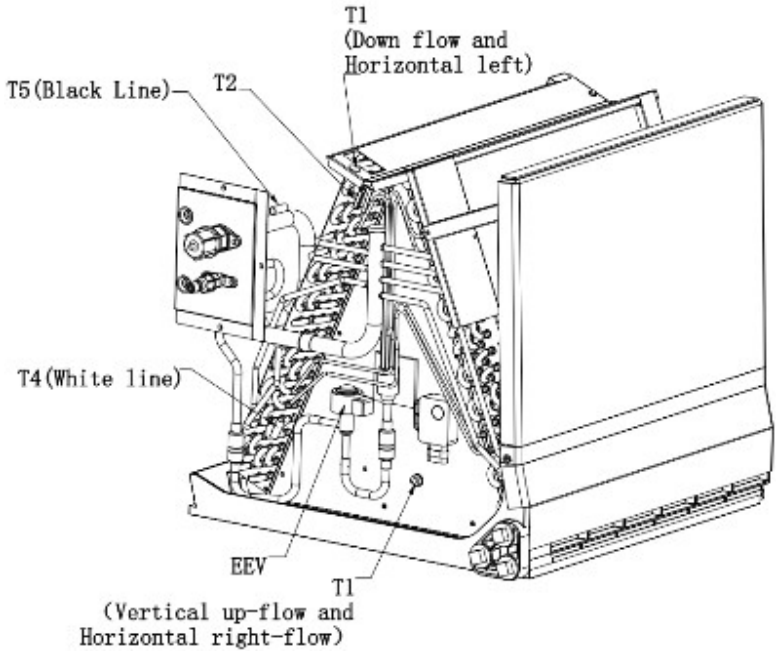


Figure 3

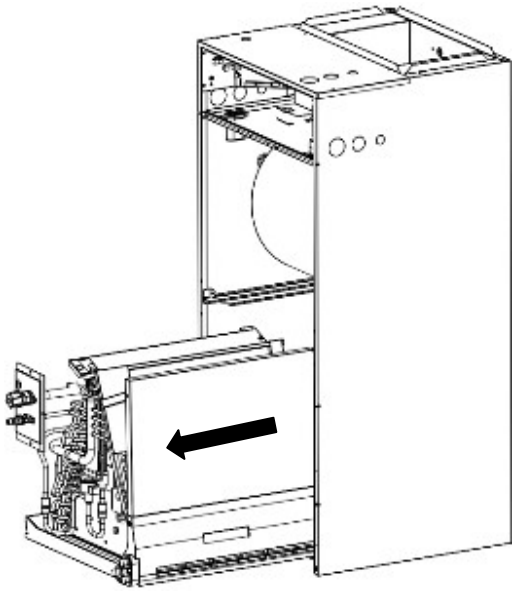


Figure 4

STEP 4

Rotate the outlet of cabinet to the air outlet direction. After mounting the evaporator assembly onto the middle rail. Shown in Figure 3-7.

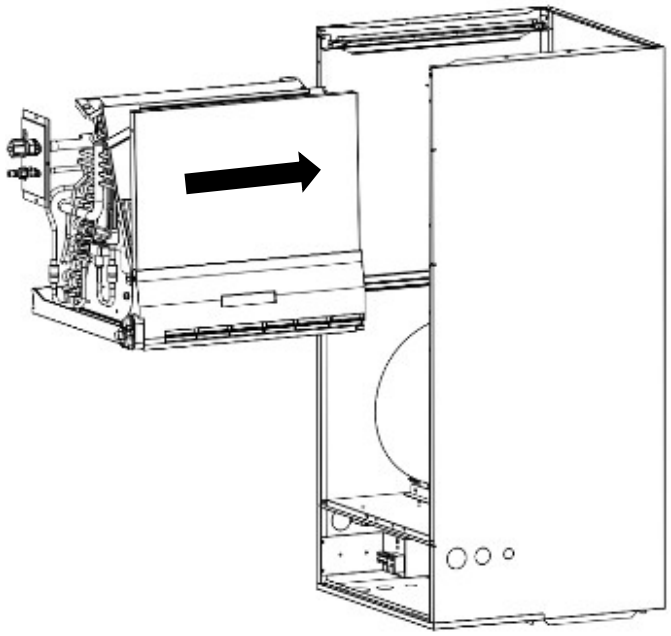


Figure 3-7

STEP 5

Secure the screws on support strips 1 and 2 and the piping cover panel separately. Shown in Figure 3-8.

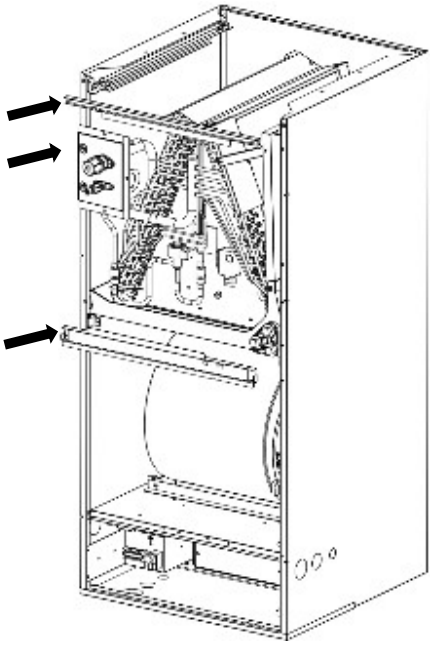


Figure 3-8

STEP 6

Insert the temperature probes[T2/T4(white line)/T5(black line)], EEV coil, and refrigerant sensor wires back into their original positions on the evaporator assembly (Figure 3-5). Insert the T1 ambient temperature probe into the knockout hole position shown in Figure 3-9.

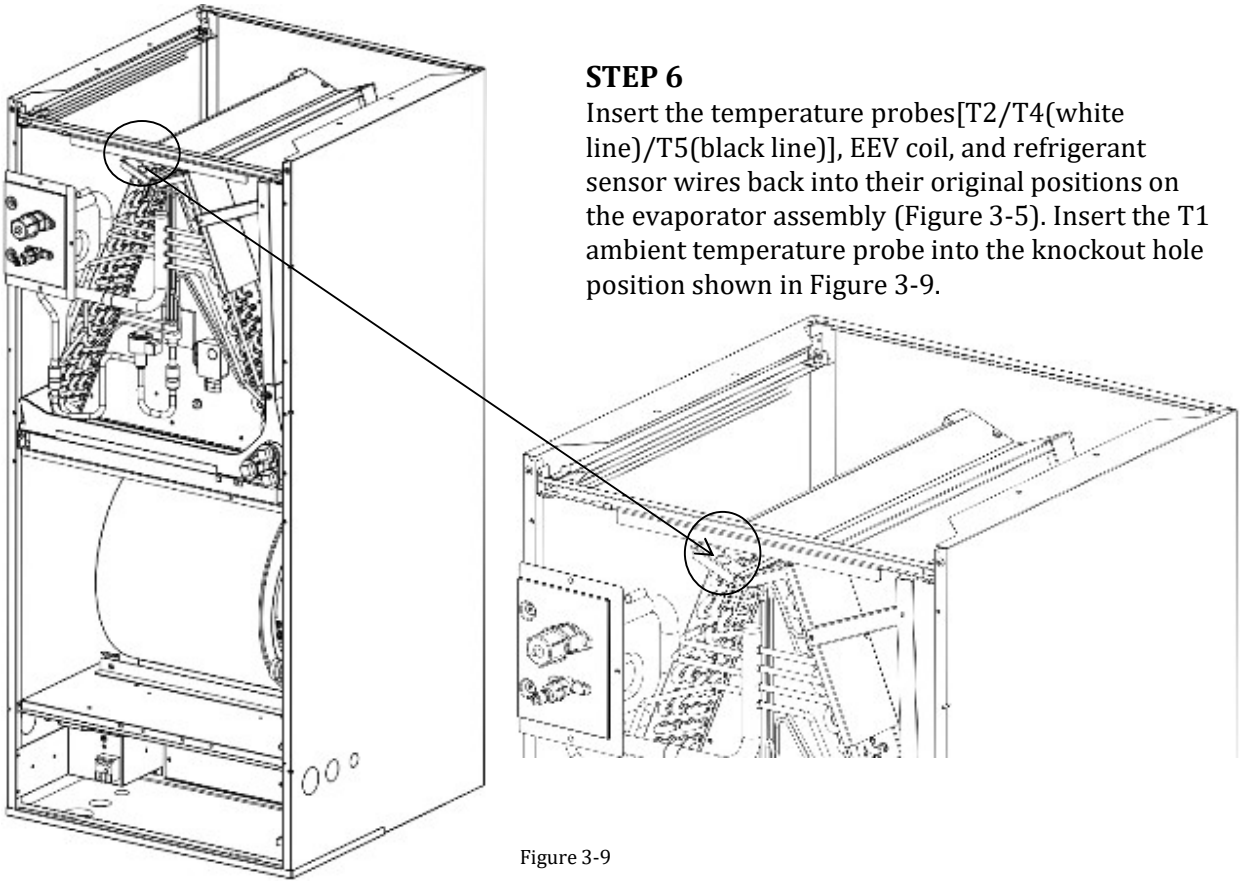
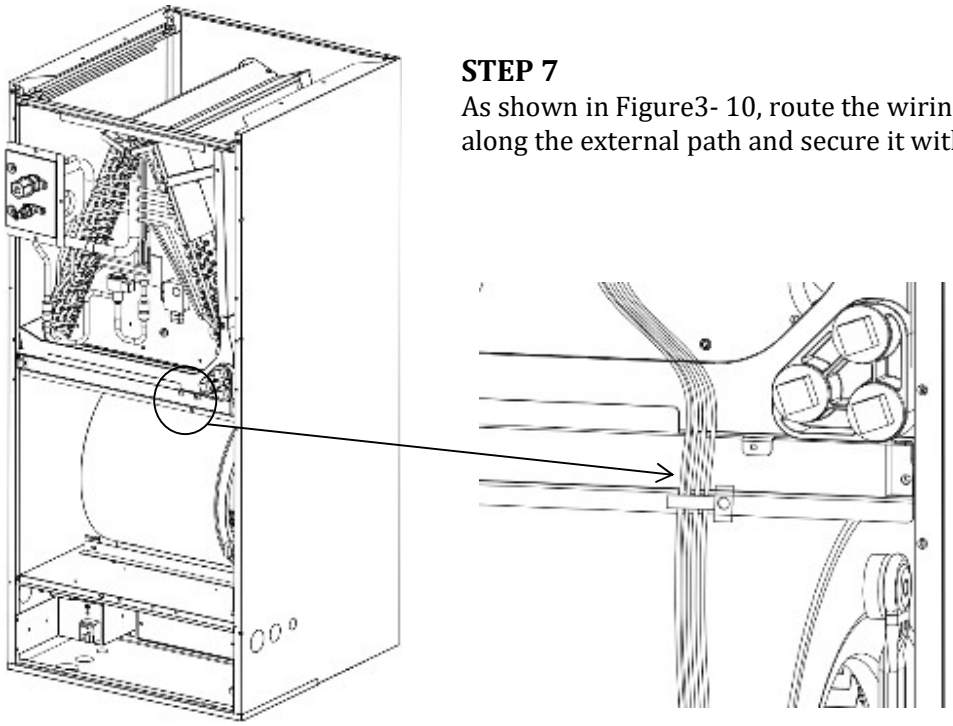


Figure 3-9



STEP 7

As shown in Figure3- 10, route the wiring harness along the external path and secure it with cable ties.

Figure 3-10

STEP 8

Secure the screws on upper and lower panels, and install the filter,filter cover plate. Shown in Figure3- 11. As shown in Figure3-12, complete the assembly process.

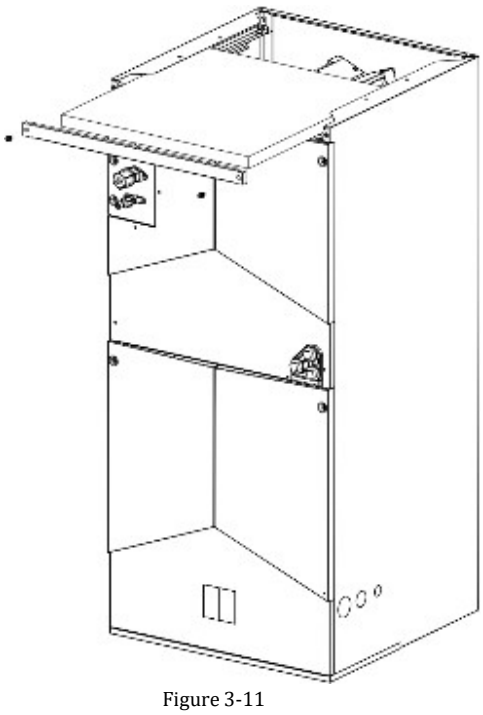


Figure 3-11

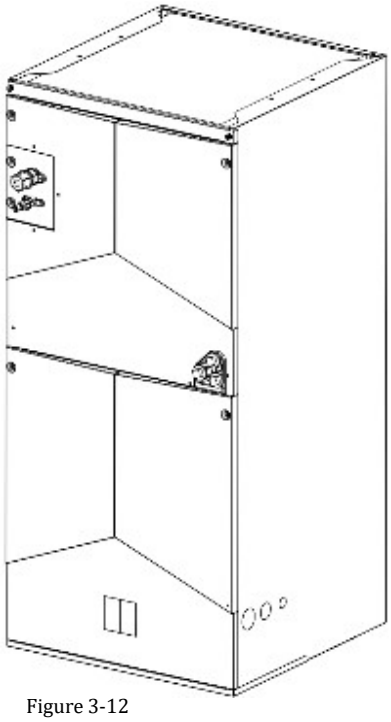


Figure 3-12

CAUTION

Horizontal units must be configured for right-hand air supply. Horizontal drain pan must be located under indoor coil. Failure to use the drain pan can result in property damage.

Make sure unit is leveled or pitched slightly toward primary drain connection so that water will drain completely from the pan. Up to an additional 1/4" rise over the width or depth of the unit is allowed to create additional sloping towards the drain. Unit must be positioned between level and 1/4" rise ,sloping toward the drain connections. See figures 1 to 4 for reference.

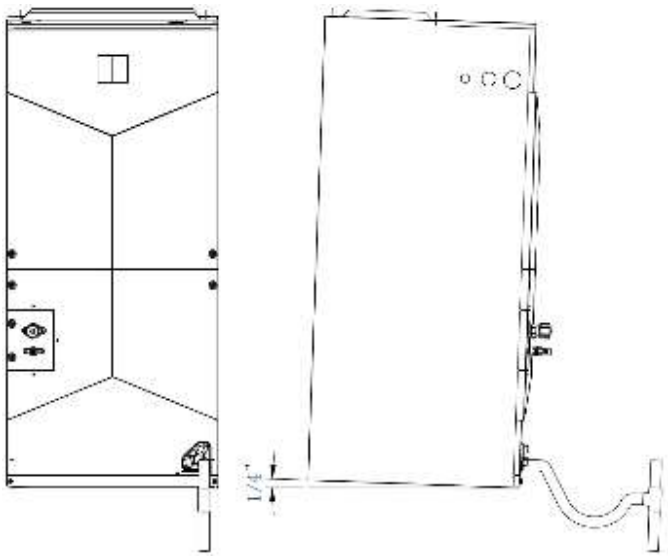


Figure 1 Vertical up view

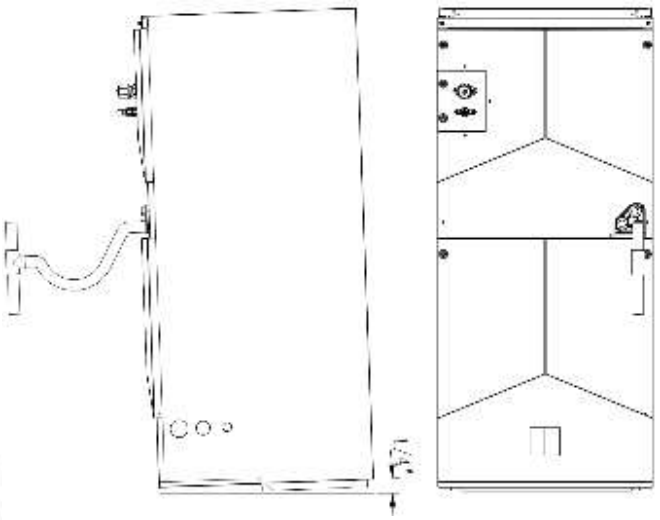


Figure 2 Vertical down view

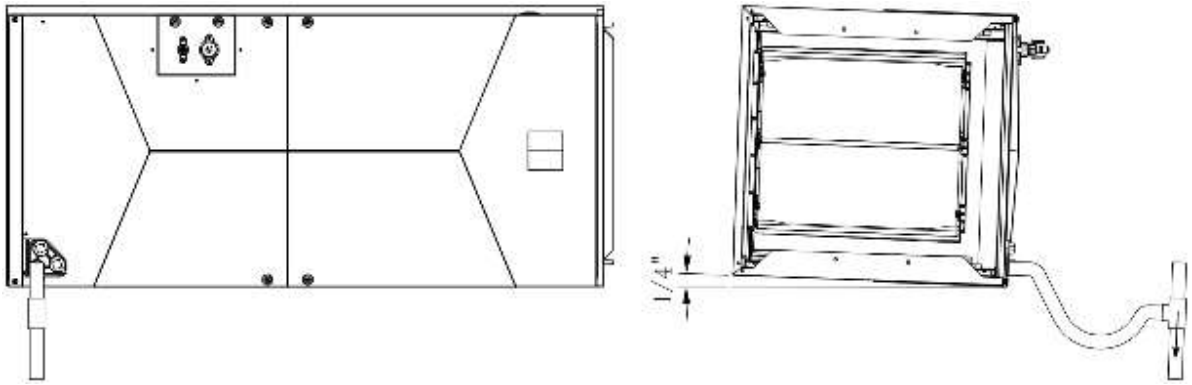


Figure 3 Horizontal right view

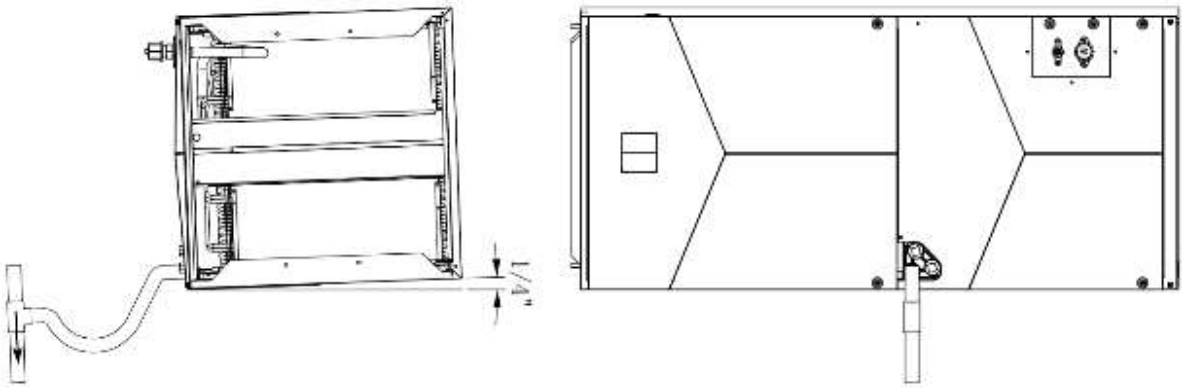
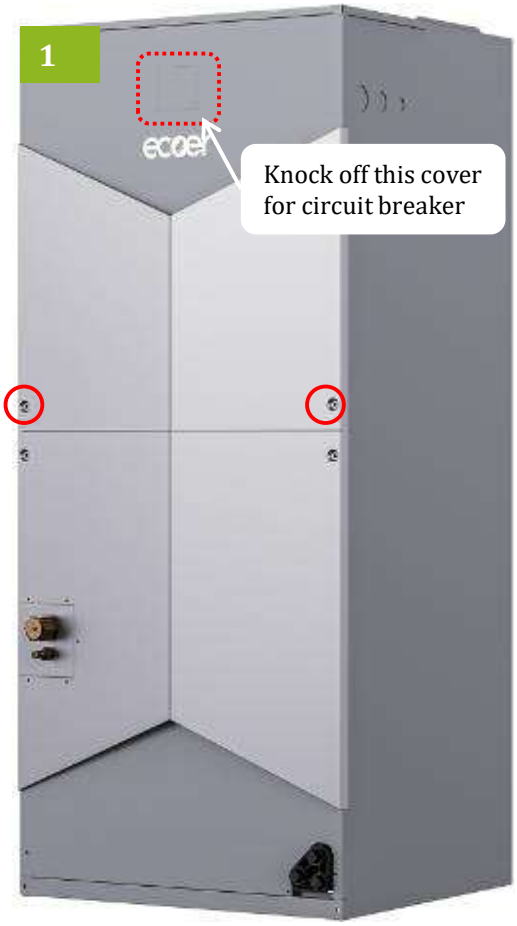


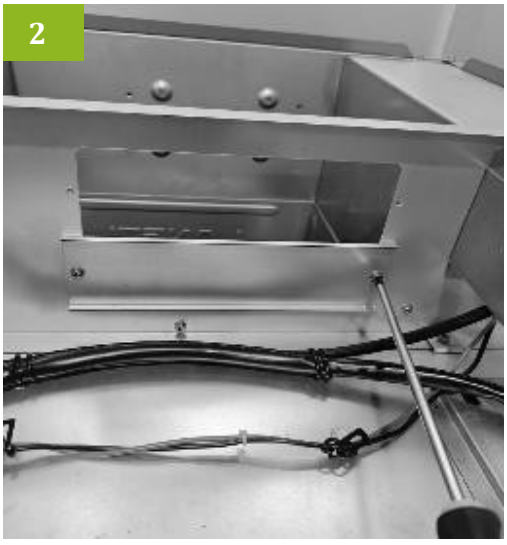
Figure 4 Horizontal left view

5.3 Electric Heat Installation

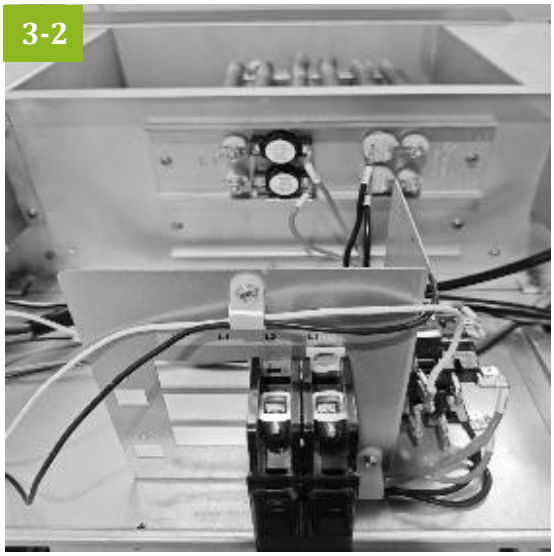
STEP 1. Unfasten 4 screws to take away the blower access panel of the air handler.



STEP 2. Remove cover plate based on actual requirement.



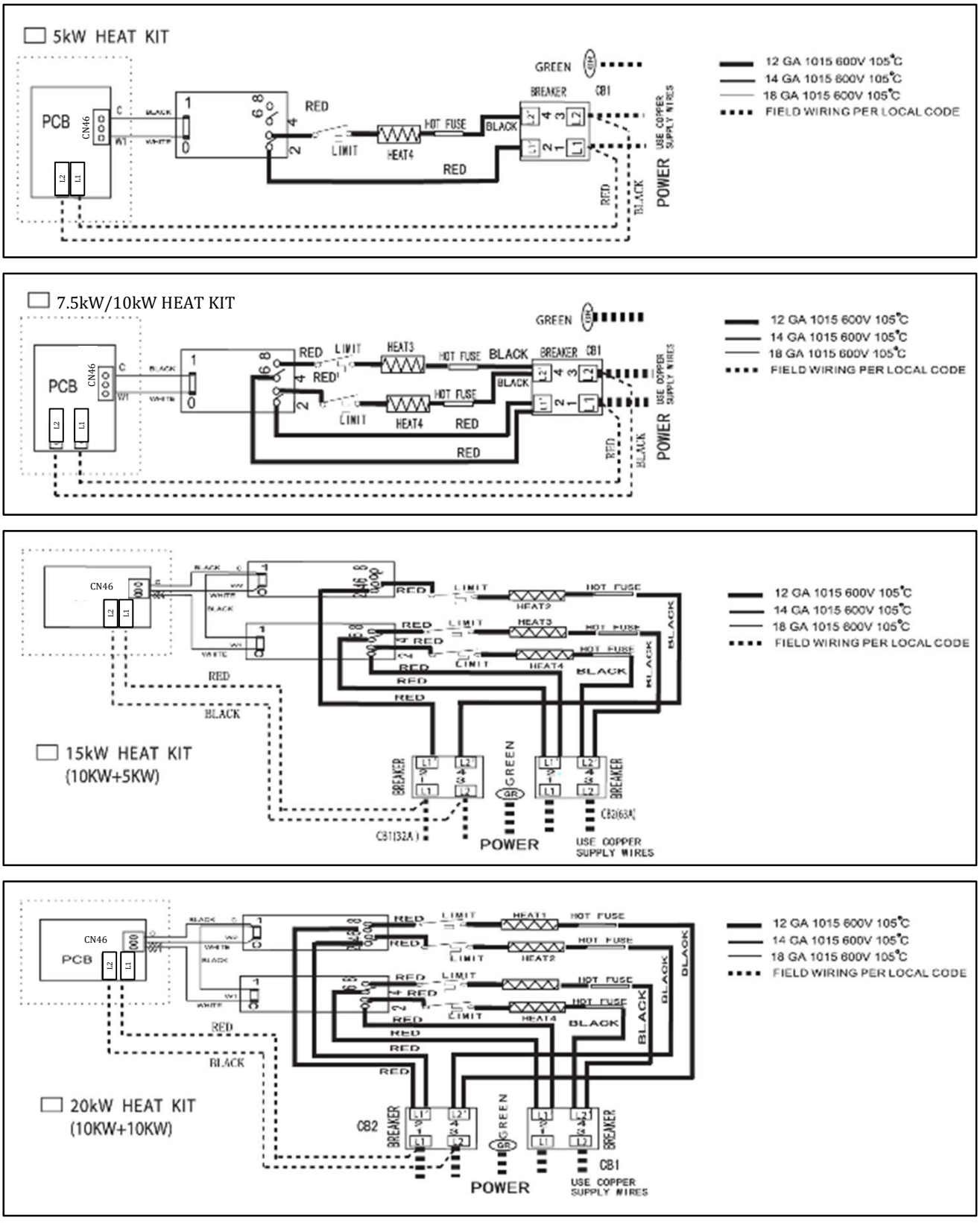
STEP 3. Slide the kit into the duct and fasten the element (e.g. attachment and wires).



STEP 4. Install the circuit breaker into the mounting rail. Knock off the reserved cover for breaker in blower access panel prior to put it back to the unit.

WARNING

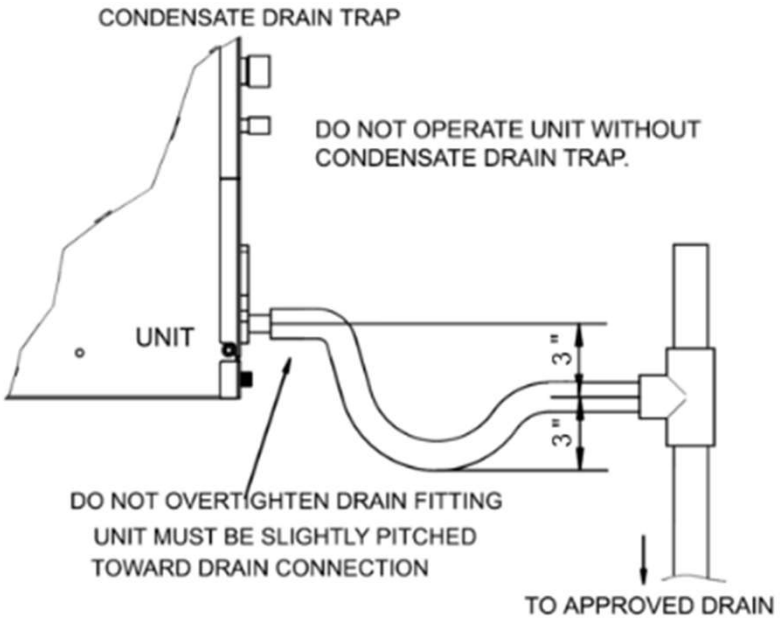
Disconnect all power to unit before installing or servicing. More than one disconnect switch may be required to de-energize the equipment. Hazardous voltage can cause severe personal injury or death.



Wiring diagram for electric heat

5.4 Condensate Drain Connection

1. Use a thin layer of Teflon paste, silicone or Teflon tape when making drain fitting connections.
2. Do not over tighten fittings resulting in splitting pipe connections on the drain pan.



- Make sure the drain pipes layout do not block service access. Minimum clearance of 24 inches is required for filter, coil or blower removal and service access.
- Ensure the unit is level or pitched slightly toward primary drain connection so that water will drain smoothly from the pan. All horizontal drain pipes must be pitched downward away from the unit a minimum of 1/8” per foot of line to ensure proper drainage.
- Do not reduce drain pipe size less than connection size provided on condensate drain pan.
- Do not connect condensate drain pipe to a closed or open sewer pipe.
- The drain pipe should be insulated where necessary to prevent sweating and damage due to condensate forming on the outside surface of the line.
- Make provisions for disconnecting and cleaning of the primary drain pipe if it become necessary. Install a 3-inch trap in the primary drain pipe as close as possible to the unit. Make sure that the top of the trap is below connection to the drain pan to allow complete drainage of pan.
- Auxiliary drain pipe should be connected to a place where it will be noticeable. Homeowner should be warned that a problem exists if water begins running from the auxiliary drain pipe.
- Test condensate drain pan and drain pipe after installation is complete. Pour enough water into drain pan, make sure that the drain pan is draining completely, no leaks are found in drain pipe fittings, and no water is draining from the termination of the primary drain pipe.

5.5 Refrigerant Line Considerations

5.5.1 Refrigerant Line Limits

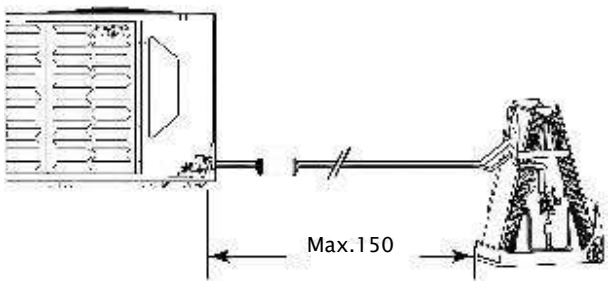
Use only the line sizes indicated in table below and determine required line length. If the suction line sets are greater than 50 feet, do not use a larger suction line than recommended.

Table 1 Line sizes and maximum lenghth

Model	Liquid Line	Suction Line	Total Equivalent Length (FT)					
			25	50	75	100	125	150
	Dimensions in inches		Maximum Elevation Difference (FT)					
2Ton	3/8 Std.	3/4 Std.	25	50	45	40	30	25
	1/4 Opt.	5/8 Opt.	25	50	40	30	30	25
3Ton	3/8 Std.	3/4 Std.	25	50	50	50	35	25
	1/4 Opt.	5/8 Opt.	25	50	45	40	35	25
4Ton	3/8	7/8 Std.	25	50	50	40	30	25
		3/4 Opt.	25	50	50	40	30	25
5Ton	3/8	7/8 Std.	25	50	50	40	30	25
		3/4 Opt.	25	50	50	40	30	25
		1-1/8 Opt.	25	40	N/A	N/A	N/A	N/A

Std.: Standard line size; **Opt.**: Optional line size; **N/A**: Application not recommended

• Maximum line length = 150 feet.



ft Fig 4–1 Line length

limit

• Maximum elevation difference = 50 feet.

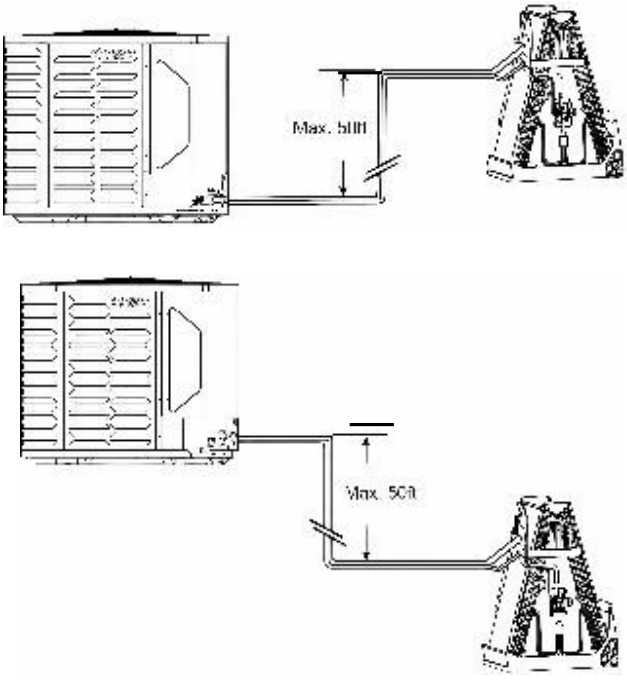


Fig 4–2 Elevation difference limit

5.5.2 Refrigerant Line Insulation

The suction line must always be insulated.

DO NOT allow the suction line and liquid line to come in direct (metal to metal) contact.

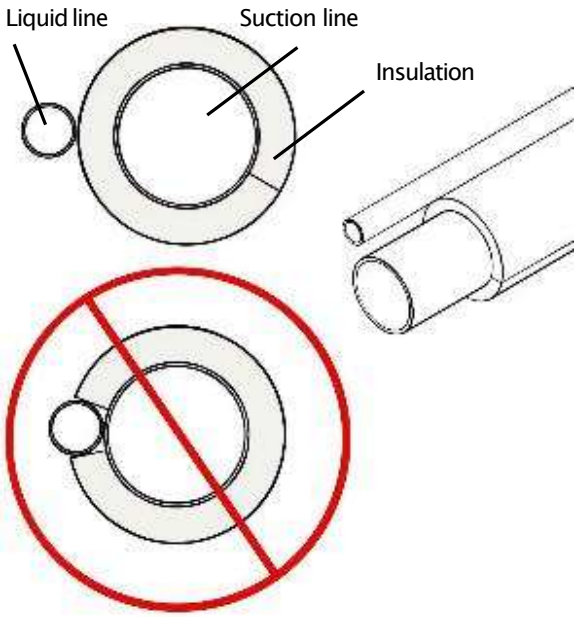


Fig 4–3Line insulation

5.5.3 Reuse Existing Refrigerant Lines

⚠CAUTION

If you using existing refrigerant lines, ensure that all joints are brazed, not soldered.

For retrofit applications where the existing refrigerant lines will be used, the following precautions should be taken:

- Ensure that the refrigerant lines are the correct size according to Table 4-1. It's not recommended to use suction line bigger than standard size, in which will result poor oil return for inverter compressor.
- Ensure that the refrigerant lines are **free of leaks, acid and mineral oil.** When replacing R-22 system with a new R-454B system, be sure the existing lines can endure R-454B pressure which is 50~70% higher than R-22 system. Use flush (e.g. Rx11) to remove the old mineral oil, sludge, moisture, acid and other contaminants out of the line set.

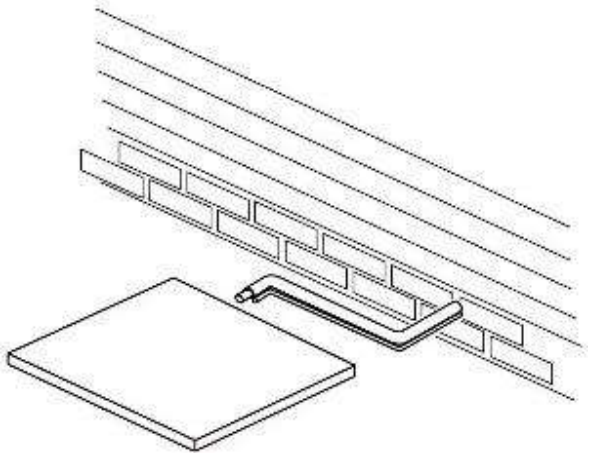


Fig 4–4Use existing refrigerant lines

IMPORTANT:
It is recommended to equip indoor units with adjustable TXV/EEV for R-454B heat pump.
The model of TXV/EEV should be suitable for the system capacity and should be with internal check valves for heat pump, which can be verified to work properly by checking superheat in cooling.
No micro channel coil shall be used for heat pump.
Micro channel coils are suitable for cooling only system.

5.6 Refrigerant Line Connection

5.6.1 Refrigerant Line Brazing Connection

Refer to below figures marked with digital number for line brazing procedures.
Every figure is corresponding to the following illustrations.

1. Find the plastic bag taped to the outdoor unit that contains the copper adapter tube and brass nut. Remove the dust plugs and plastic threaded joints from both ends.
2. Wrap a wet rag around filter drier body to avoid heat damage and continue the dry nitrogen purge. Braze the refrigerant lines to the adapter tube. Install a bidirectional filter drier (NO active alumina allowed) in liquid line to protect the heat pump. Do not remove the wet rag until all brazing is completed.
3. Remove the brass nut from the service valve.
4. Remove the plastic pressure tap caps from both service valves.
5. Attach the brass nut to the service valve. First, use an appropriately sized open-end wrench (Wrench A) to hold the service valve steady. Then, use a torque wrench (Wrench B) to tighten the brass nut. Refer to Table 6-1 for the specifications of the open-end wrench and the tightening torque for the torque wrench. Excessive tightening may damage the threads of the service valve.
6. Evacuate the refrigerant lines.
7. After completing the evacuation, install the pressure tap caps back using a torque of 1.5-2N•m.

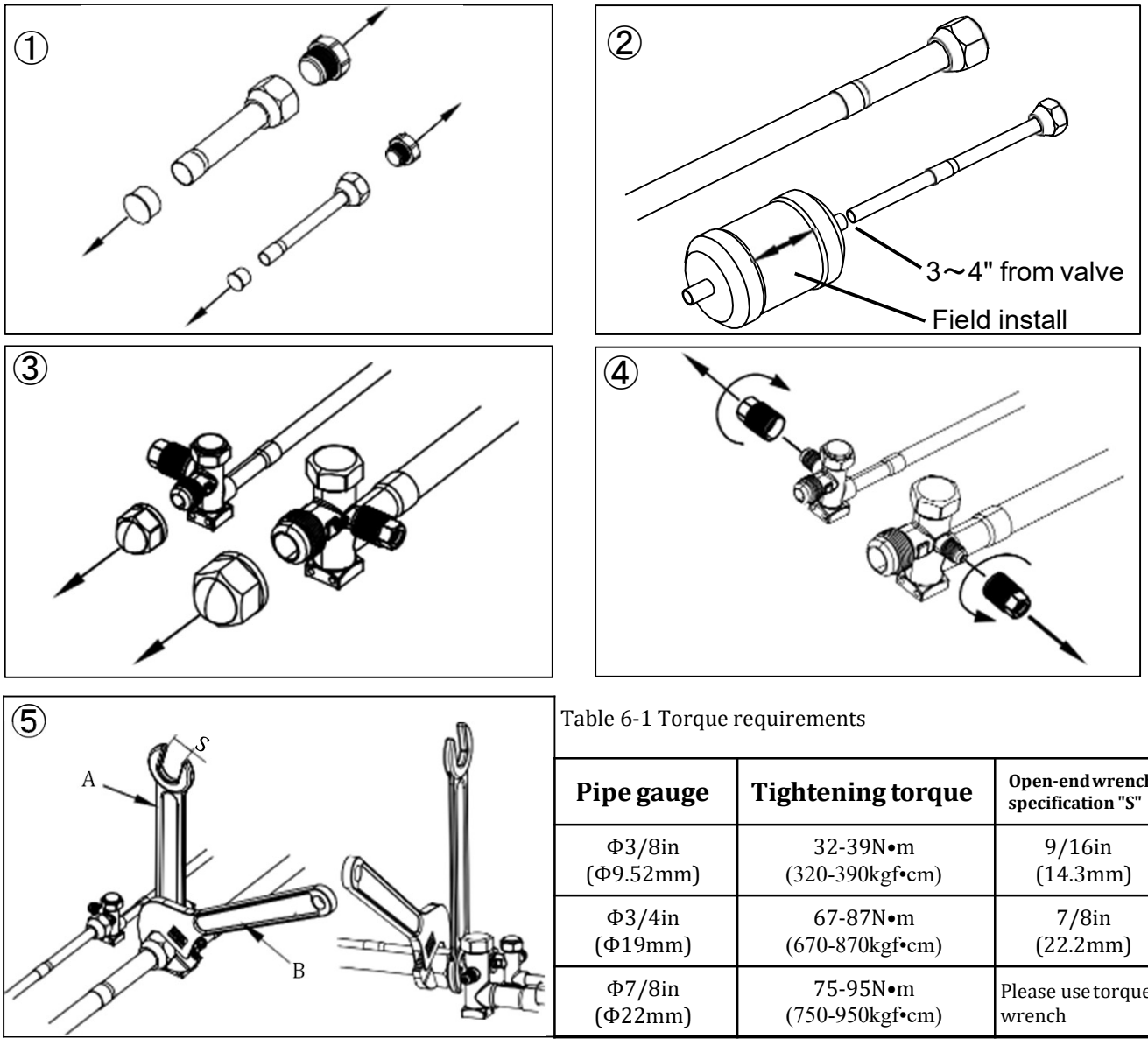


Table 6-1 Torque requirements

Pipe gauge	Tightening torque	Open-end wrench specification "S"
Φ3/8in (Φ9.52mm)	32-39N•m (320-390kgf•cm)	9/16in (14.3mm)
Φ3/4in (Φ19mm)	67-87N•m (670-870kgf•cm)	7/8in (22.2mm)
Φ7/8in (Φ22mm)	75-95N•m (750-950kgf•cm)	Please use torque wrench

Fig-1 Refrigerant Line Brazing Connection

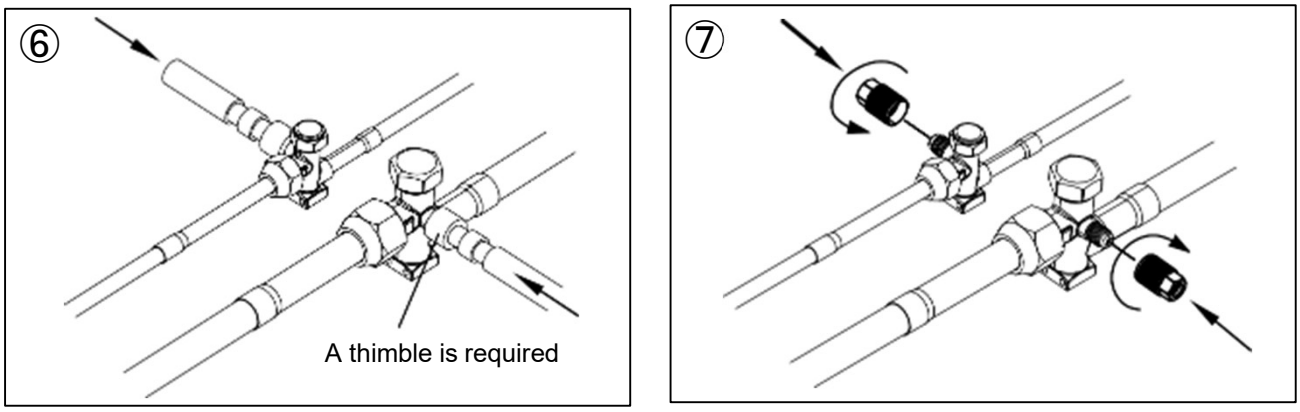


Fig -1 Refrigerant Line Brazing Connection

5.6.2 Refrigerant Line Press Fitting Connection

This Press Fitting connection operation is for reference only. Please follow the official instructions provided by Press Fitting Tools for operation.

1. Use a rotary tube cutter to cut off the flaring structure of the copper tube.
2. Using a reamer or deburing tool, remove all burrs from the cut section of the pipe.
3. Use a pencil type deburrer on internal tube edges.
4. Thoroughly clean the tube end using a general purpose hand pad or sand cloth in a rotating motion.
5. Insert the tube fully into the fitting. Ensure tube is fully inserted prior to pressing
6. Align jaws squarely on the fitting,complete the joint with the approved tool. Press once only.
   The Press Fitting connection has been completed. Please proceed with Steps 3 to 7 in Section 6.1 to complete the refrigerant line connection.

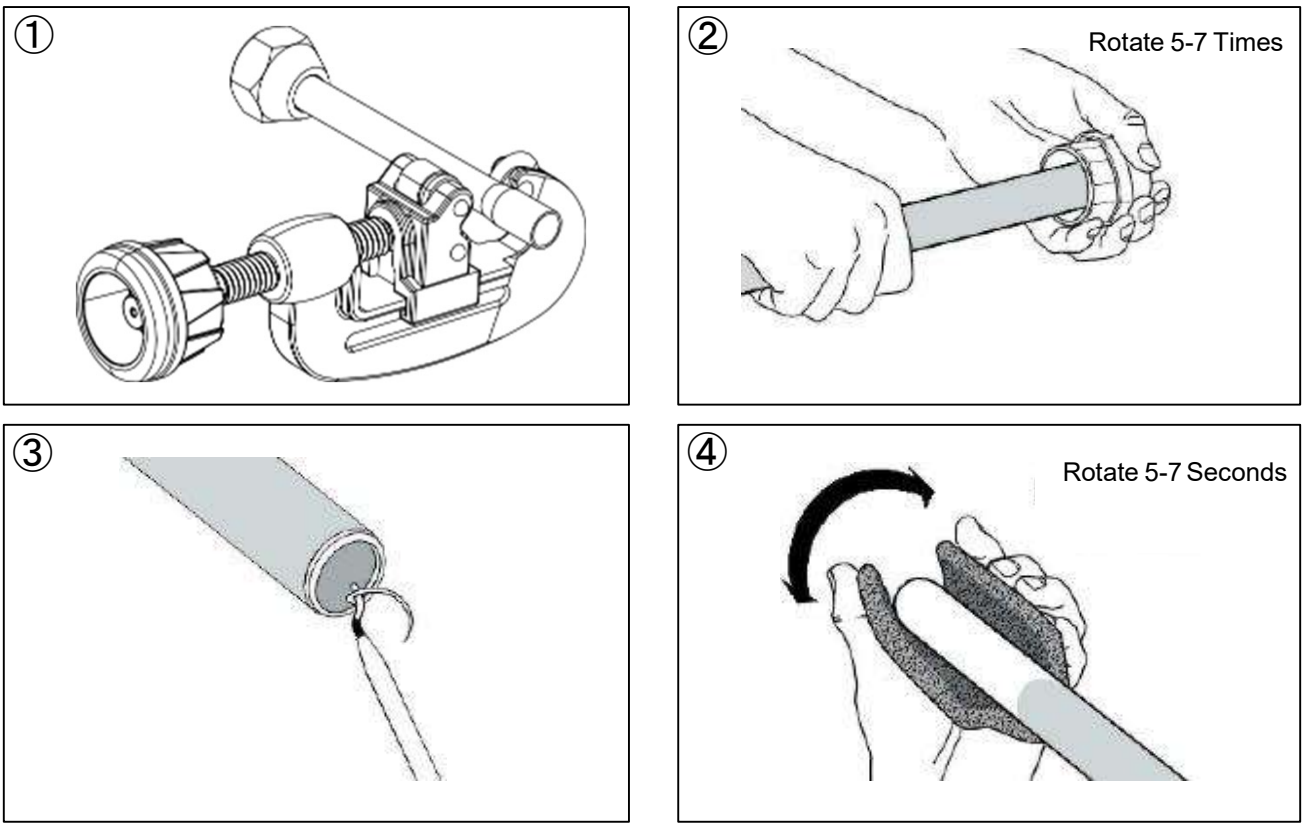


Fig -2 Refrigerant Line Press Fitting Connection

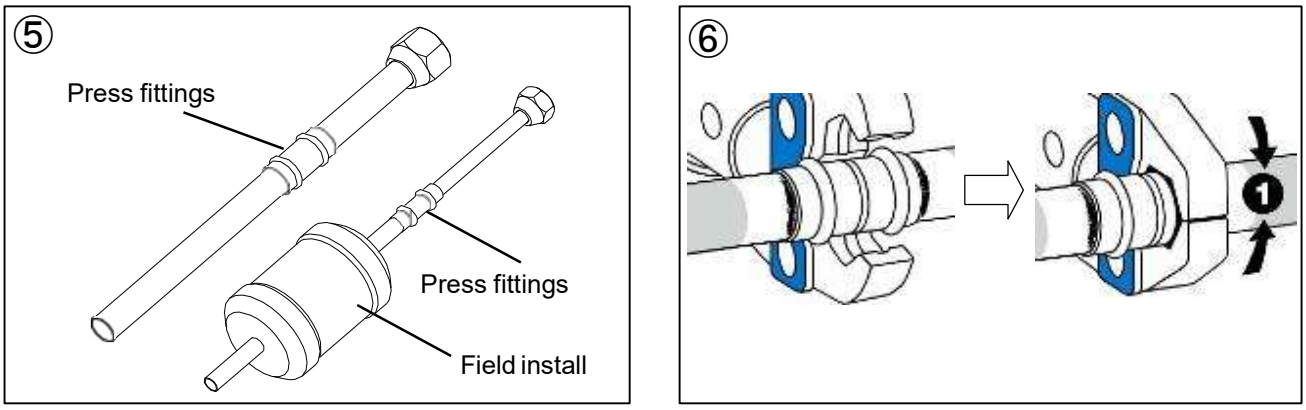


Fig 6-2 Refrigerant Line Press Fitting Connection

5.6.3 Refrigerant Line Connection

All joints made in the installation between parts of the REFRIGERATING SYSTEM, with at least one part charged, shall be made in accordance with the following:

•A brazed, welded, or mechanical connection shall be made before opening the valves to permit refrigerant to flow between the REFRIGERATING SYSTEM parts. A vacuum valve shall be provided to evacuate the interconnecting pipe or any uncharged REFRIGERATING SYSTEM part.

•Mechanical connectors used indoors shall comply with ISO 14903. When mechanical connectors are reused indoors, sealing parts shall be renewed. When flared joints are reused indoors, the flare part shall be refabricated.

• Refrigerant tubing shall be protected or enclosed to avoid damage.

•Flexible refrigerant connectors (such as connecting lines between the indoor and outdoor unit) that may be displaced during NORMAL OPERATION shall be protected against mechanical damage.

Compliance is checked according to the installation instructions and a trial installation, if necessary.

Field-made refrigerant joints indoors shall be tightness tested. The test method shall have a sensitivity of 5 grams per year of refrigerant or better under a pressure of at least 0.25 times the maximum allowable pressure. No leak shall be detected.

For installations with field applied joints that are exposed in the occupied space these joints shall be at least one of the following:

• Mechanical joints in compliance with ISO 14903 or UL 207 (U.S. only).

• Welded or brazed joints.

•Joints in enclosures that vent to the unit or to the outside.

Compliance is checked by inspection and tests.

5.7 System Leak Check

Leak check is required for the brazed line connections.

1. Pressurize the brazed refrigerant lines and indoor coil to at least 450 PSIG using dry nitrogen.
2. Wait for 10 minutes without a drop in pressure.
3. Check for leaks by using a soapy solution or bubbles at each brazed location.

Note: Remove nitrogen pressure and repair any leaks before continuing.

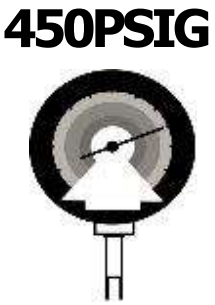


Fig -1: Charge the system with dry nitrogen

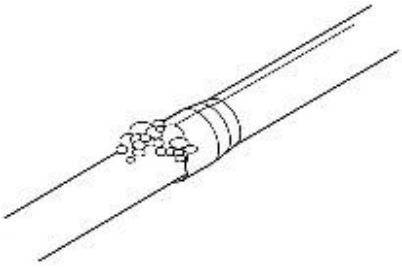


Fig -2 Leak check

After completion of field piping for split systems, the field pipework shall be pressure tested with nitrogen and then vacuum tested prior to refrigerant charging, according to the following requirements:

1.The minimum leak test pressure of the lineset and indoor coil shall be the high side design pressure, unless the high side of the system, cannot be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side design pressure.

2.The test pressure after removal of pressure source shall be maintained for at least 1 hour with no decrease of pressure indicated by the test gauge, with test gauge resolution not exceeding 5% of the test pressure.

Important: Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks.

Important: The following leak detection methods are deemed acceptable for all refrigerant systems:

• Electronic leak detectors calibrated for R454B

• Bubble method

5.8 Evacuation and Servicing

5.8.1 Evacuate the Refrigerant Lines and Indoor Coil

Do not open the service valves until the leak check and evacuation are complete.

1. The vacuum should be pulled for at least 45 minutes.
2. Evacuate until the micron gauge reads less than 350 microns, then close the valve to the vacuum pump.
3. Evacuation is complete if the micron gauge does not rise above 500 microns in 10 minutes.
4. Once evacuation is complete, blank off the vacuum pump and micron gauge, and close the valve on the manifold gauge set.

Under no circumstances shall potential sources of ignotion be used in the searching for or detection of refrigerant leaks.
The following leak detection methods are deemed acceptable for all refrigerant systems:
• Electronic leak detectors calibrated for R454B
• Bubble method
• Fluorscent method agents
If a leakage of refirgerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak.

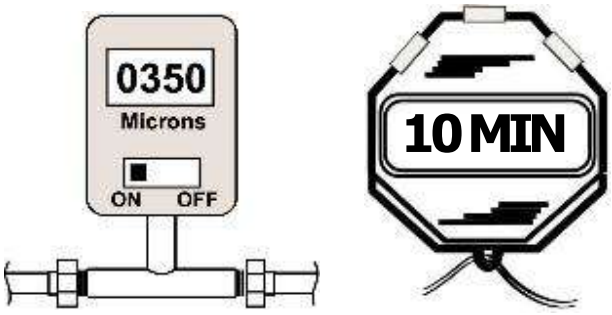


Fig –1 Evacuation the refrigerant system

5.8.2 Servicing

•If repairs must be made after system is charged, properly and safely remove or isolate refrigerant and purge the section of the system needing repair with Nitrogen gas or oxygen free nitrogen prior to opening the circuit.

• The REFRIGERANT CHARGE shall be recovered into the correctly marked recovery cylinders.

•Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and the ventilation is available.

•Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

•Ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. Only use cylinders designated for there covered refrigerant and labelled for the refrigerant. Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order.

•A set of caliberated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Ensure any associated electrical components are sealed.

•The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder. Do not mix refrigerants.

•If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant.

5.9 Service Valves

Leak check and evacuation must be completed before opening the service valves.

The gas service valve must be opened BEFORE opening the Liquid Service Valve!

1. Remove service valve cap.
2. Fully insert hex wrench into the stem and counterclockwise until valve stem just touches the rolled edge (approximately five turns.)

3.Replace and tighten the valve stem cap to prevent leaks. Additional 1/6 turn may be required.

Repeat 1 to 3 for Liquid Service Valve.

⚠ WARNING

Extreme caution should be exercised when opening the Liquid Service Valve. Turn counterclockwise until the valve stem just touches the rolled edge. No torque is required.

Failure to follow this will result in abrupt release of system charge and may lead to personal injury and /or property damage.

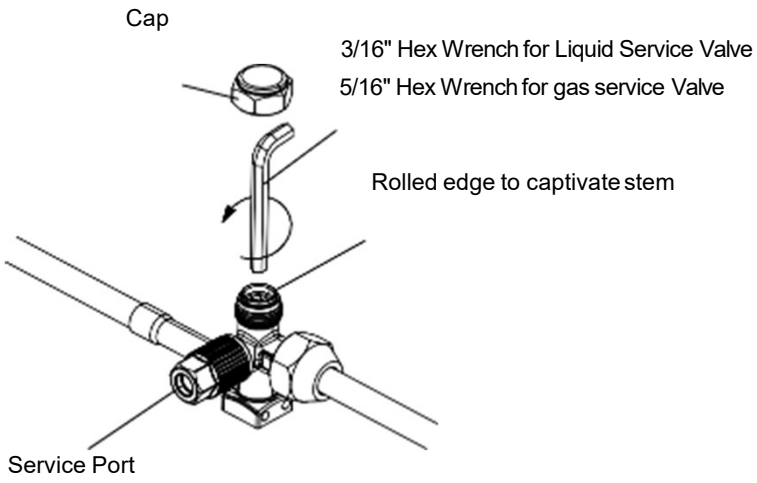


Fig 9–1 Open the service valves

5.10 Electrical Wring- Outdoor unit

5.10.1 Low voltage wire requirement

Define the maximum length of low voltage wiring from condensing unit to indoor unit and thermostat.

Field installed electrical conduit is required at the low voltage wire entry point. Animals like frogs, snakes, spiders and others may climb into the control box resulting in the MCB damage. **Manufacturer reserves the rights to reject warranty claim on MCB if not comply.**

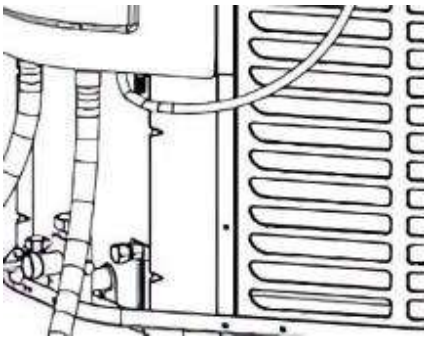


Fig –1 Sealing requirement

Table -1 Low voltage control wiring requirement

CONTROL WIRING	
Wire Size	Max. Wire Length
18 AWG	150Ft
16 AWG	225Ft

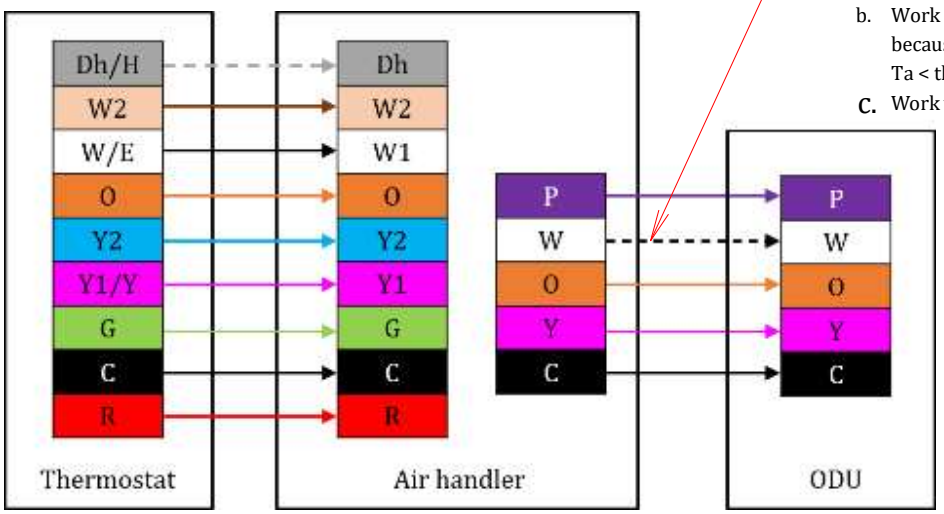
5.10.2 Low voltage hook-up diagrams

With ECOER AHU:

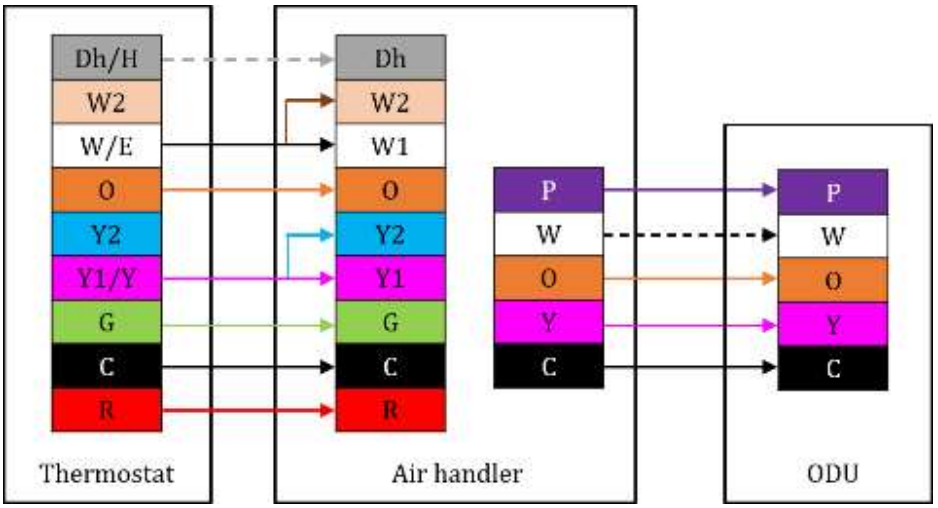
E-heater or Dual fuel

To activate the indoor second heater. Outdoor W terminal outputs 24Vac once the system needs it.

a. Work when the HP cannot to be started because of Ta < the value of n01 setting in heating.
b. Work when the second heater is called because n02 setting is ON (E-Aux) and Ta < the value of n03 setting in heating.
C. Work when the HP is in defrosting.



Wiring for 4H2C thermostat



Wiring for 2H1C thermostat

Fig 10-2 Schematic diagram for control wiring connection

NOTES:

1. Be sure power supply agrees with equipment nameplate.
2. Power wiring and grounding of equipment must comply with local codes.
3. Low voltage wiring to be No. 18 AWG minimum conductor.
4. "-------" means the electric auxiliary heater connection.

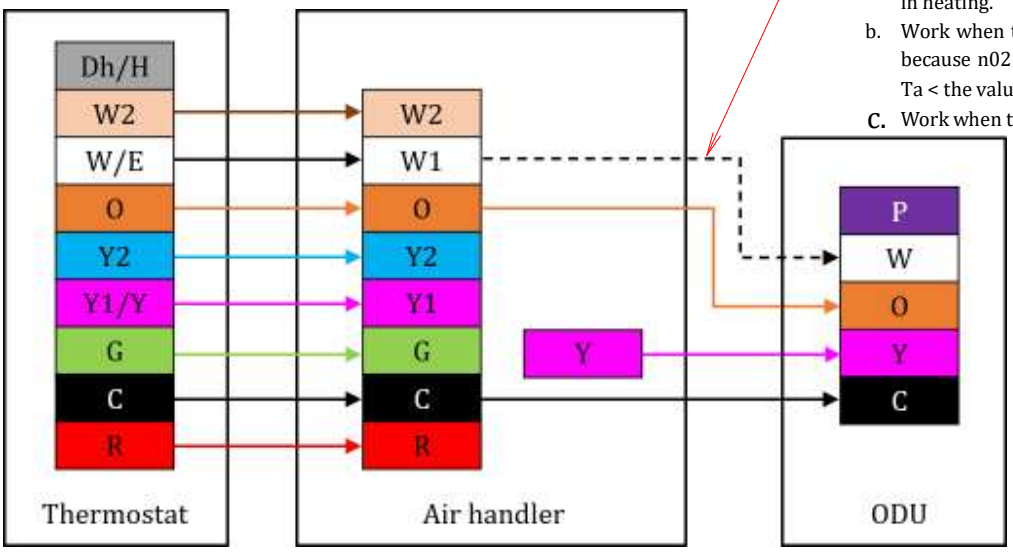
* Some thermostats may use W2/AUX for heat pump.

With the third AHU:

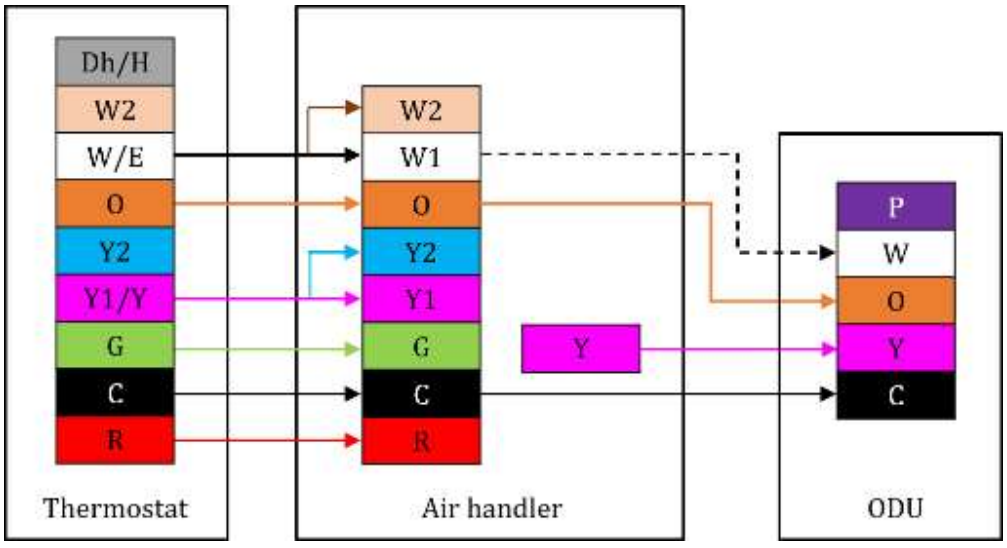
E-heater or Dual fuel

To activate the indoor second heater. Outdoor W terminal outputs 24Vac once the system needs it.

a. Work when the HP cannot to be started because of Ta < the value of n01 setting in heating.
b. Work when the second heater is called because n02 setting is ON (E-Aux) and Ta < the value of n03 setting in heating.
C. Work when the HP is in defrosting.



Wiring for 4H2C thermostat



Wiring for 2H1C thermostat

NOTES: Fig 10-3 Schematic diagram for control wiring connection

1. Be sure power supply agrees with equipment nameplate.
2. Power wiring and grounding of equipment must comply with local codes.
3. Low voltage wiring to be No. 18 AWG minimum conductor.
4. "-------" means the electric auxiliary heater connection.

* See the installation instructions and requirements of third-party devices on site, the wiring diagram is for reference only. For details, see the actual A2L Control Kit wiring diagram.
* Some thermostats may use W2/AUX for heat pump.

With the Furnace:

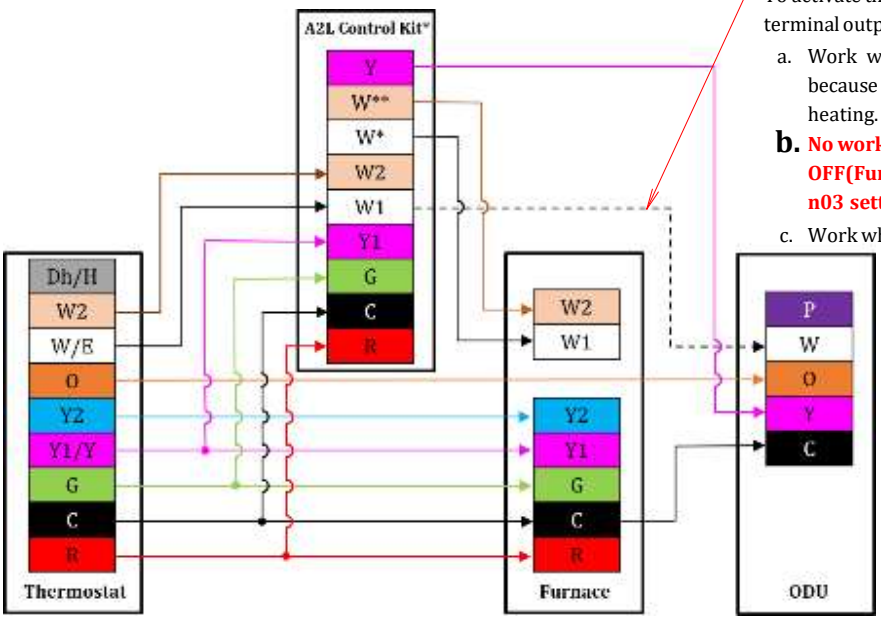
Dual fuel

To activate the second heater. Outdoor W terminal outputs 24Vac once the system needsit.

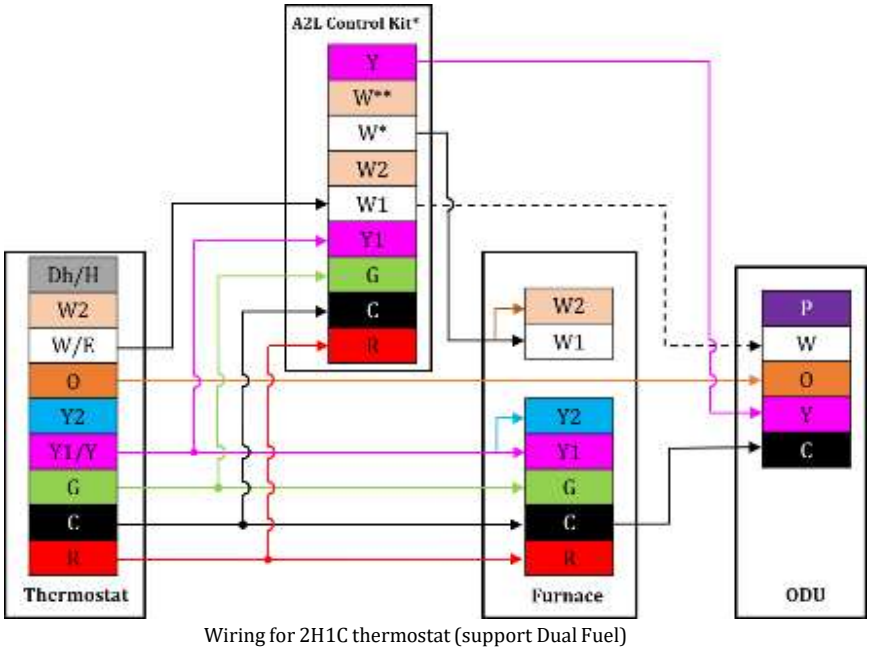
a. Work when the HP cannot to be started because of Ta < the value of n01 setting in heating.

b. No work when the n02 setting is OFF(Furnace) and regardless of the n03 setting value.

c. Work when the HP is in defrosting.



Wiring for 4H2C thermostat (support Dual Fuel)



Wiring for 2H1C thermostat (support Dual Fuel)

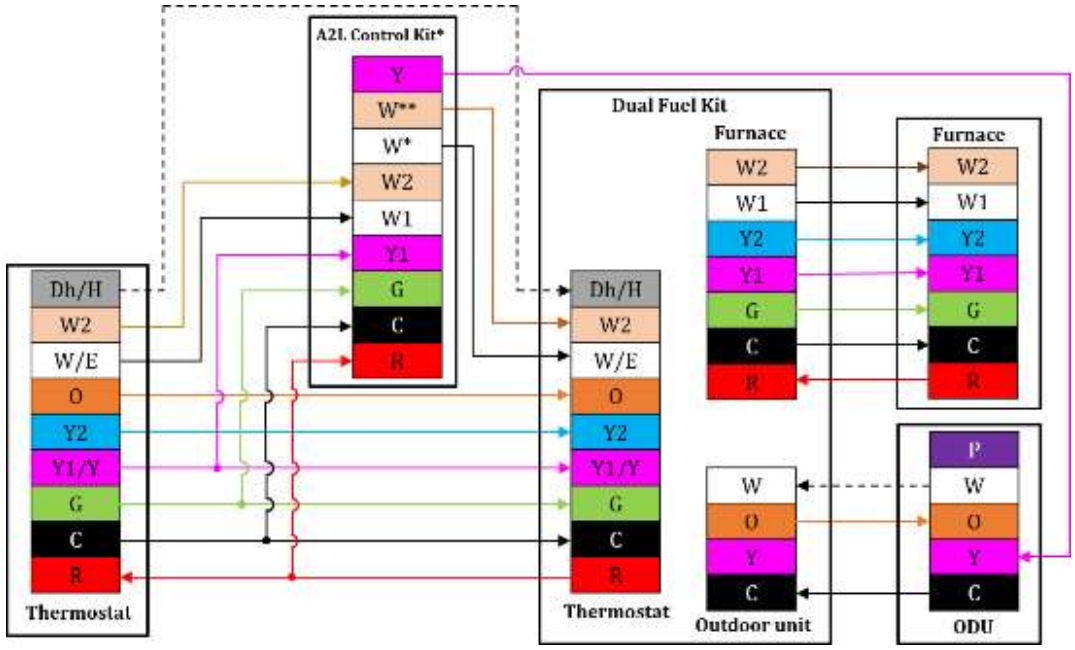
NOTES: Fig 10-4 Schematic diagram for control wiring connection

1. Be sure power supply agrees with equipment nameplate.
2. Power wiring and grounding of equipment must comply with local codes.
3. Low voltage wiring to be No. 18 AWG minimum conductor.
4. "....." means the electric auxiliary heater connection.

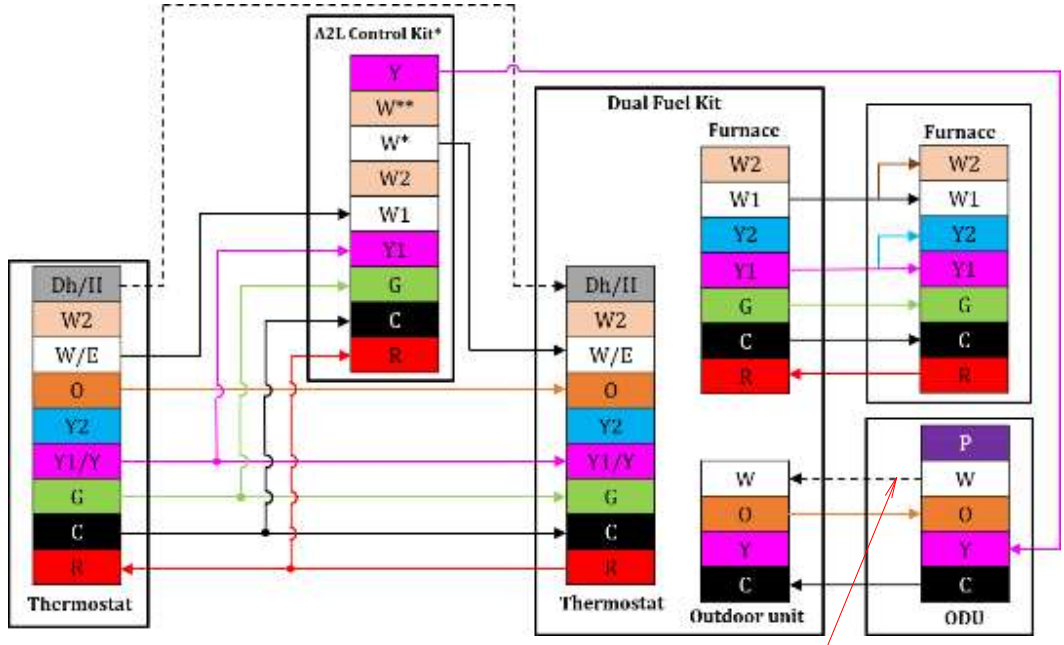
* The wiring diagram is for reference only. For details, see the actual A2L Control Kit wiring diagram.

* Some thermostats may use W2/AUX for heat pump.

With the Dual Fuel Kit:



Wiring for 4H2C thermostat (with Dual Fuel Kit)



Wiring for 2H1C thermostat (with Dual Fuel Kit)

Fig 10-5 Schematic diagram for control wiring connection

NOTES:

1. Be sure power supply agrees with equipment nameplate.
2. Power wiring and grounding of equipment must comply with local codes.
3. Low voltage wiring to be No. 18 AWG minimum conductor.
4. "-----" means the electric auxiliary heater connection.

* The wiring diagram is for reference only. For details, see the actual A2L Control Kit wiring diagram.
* Some thermostats may use W2/AUX for heat pump.

Dual fuel

To activate the second heater. Outdoor W terminal outputs 24Vac once the system needs it.

a. Work when the HP cannot to be started because of Ta < the value of n01 setting in heating.
b. **No work when the n02 setting is OFF(Furnace) and regardless of the n03 setting value.**
c. Work when the HP is in defrosting.

5.10.2 High voltage power supply

> **⚠ WARNING**
>
> During installation, testing, servicing, and trouble shooting of this product, it may be necessary to work with live electrical components.
> Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

The high voltage power supply must match the equipment nameplate. Power wiring must comply with National, State and Local codes.

Follow instructions on unit wiring diagram located on the inside of the control box cover.

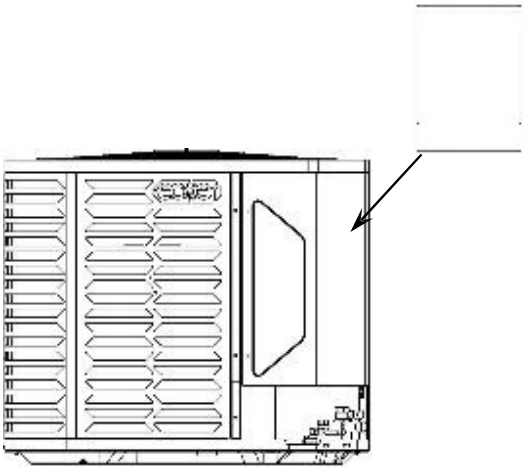


Fig –1 Read the Warning Label

Power Supply			
Model	Voltage	MCA	Breaker
2436	208/230V-1Ph-60Hz	24.4A	35A
4860	208/230V-1Ph-60Hz	32.5A	50A

5.10.3 High voltage disconnect switch

Install a separated disconnect switch at the condensing unit. Field provided **flexible electrical conduit** must be used for high voltage wiring.

In order to get full warranty coverage on the compressor, It is mandatory to install a surge protector to prevent damage to the unit caused by abnormal electrical spikes.

We recommend the Installation of a GFIC (install the GFIC as per your local codes).

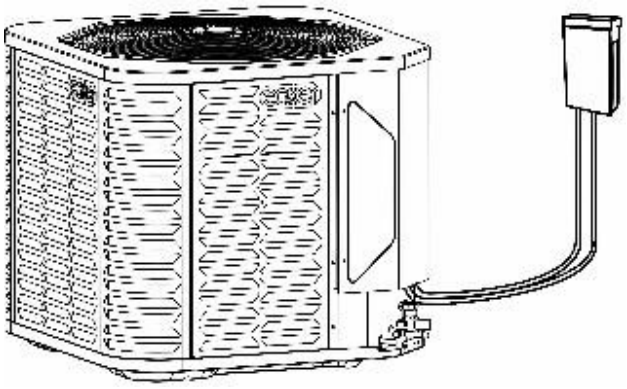
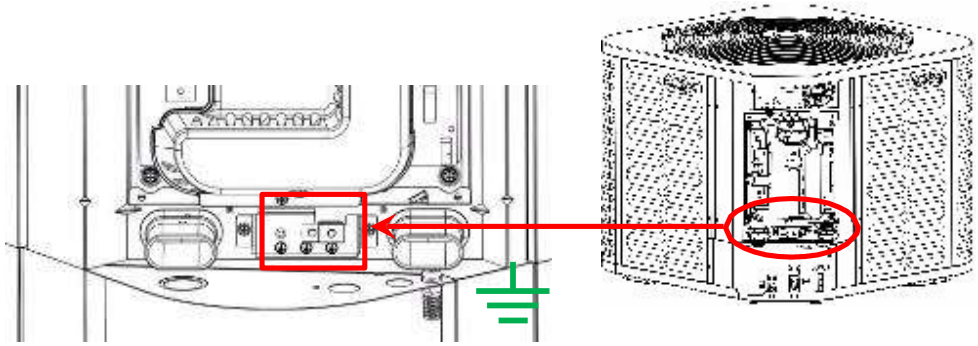


Fig –2 Install an independent switch

5.10.4 High voltage ground

Ground the condensing unit according to National, State, and Local code requirements.



5.11 Electrical Wring- Indoor unit

Field wiring must comply with the National Electric Code (C.E.C. in Canada) and any applicable local ordinance.

WARNING
Disconnect all power to unit before installing or servicing. More than one disconnect switch may be required to de-energize the equipment. Hazardous voltage can cause severe personal injury or death.

5.12.1 Power Wiring

It is important that proper electrical power is available for connection to the unit model being installed. Refer to the unit nameplate, wiring diagram and electrical data in the installation instructions.

- If required, install a branch circuit disconnect of adequate size, located within sight of, and readily accessible to the unit.
- We recommend the Installation of a GFIC (install the GFIC as per your local codes).
- When the electric heat is installed, units may be equipped with one or two 30~60 amp. circuit breakers. These breakers protect the internal wiring in the event of a short circuit and serve as a disconnect. Circuit breakers installed within the unit do not provide over-current protection of the supply wiring and therefore may be sized larger than the branch circuit protection.
- Supply circuit power wiring must be 167°F minimum copper conductors only. Refer to electrical data in this section for ampacity, wire size and circuit protector requirements. Supply circuit protective devices may be either fuses or “HACR” type circuit breakers.

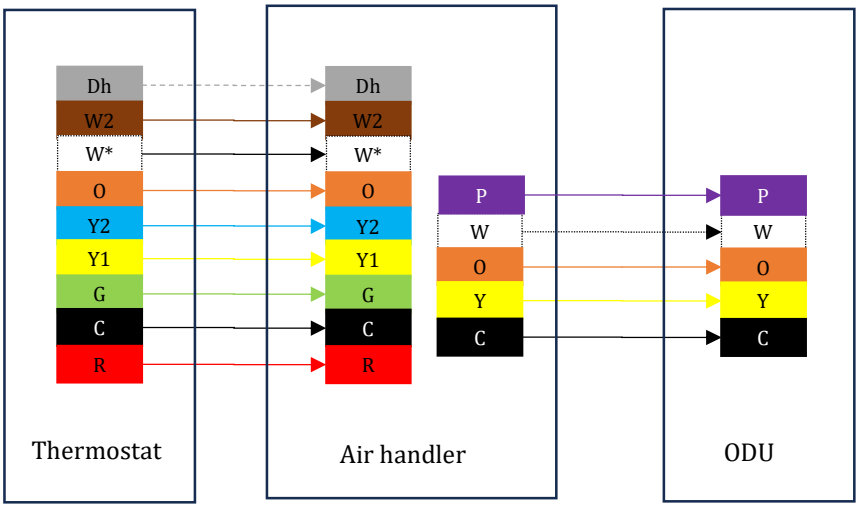
5.11.2 Control Wiring

Class 2 low voltage control wiring should not be run in conduit with main power wiring and must be separated from power wiring, unless class 1 wire of proper voltage rating is used.

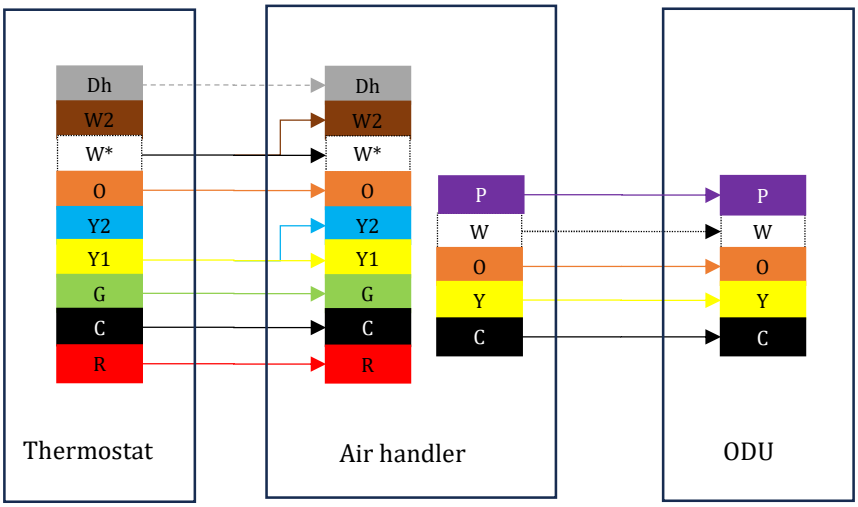
- Low voltage control wiring should be color-coded **18 AWG**. For lengths longer than 150 ft. 16 AWG. wire shall be used and maximum 225 ft.
- Refer to wiring diagrams attached to indoor and outdoor sections to be connected.
- Make sure separation of control wiring and power wiring has been maintained.

Signal Wiring Diagrams : With ECOER Heat Pump

- Wiring for 4H2C thermostat(support auto airflow)



- Wiring for 2H1C thermostat (support auto airflow)

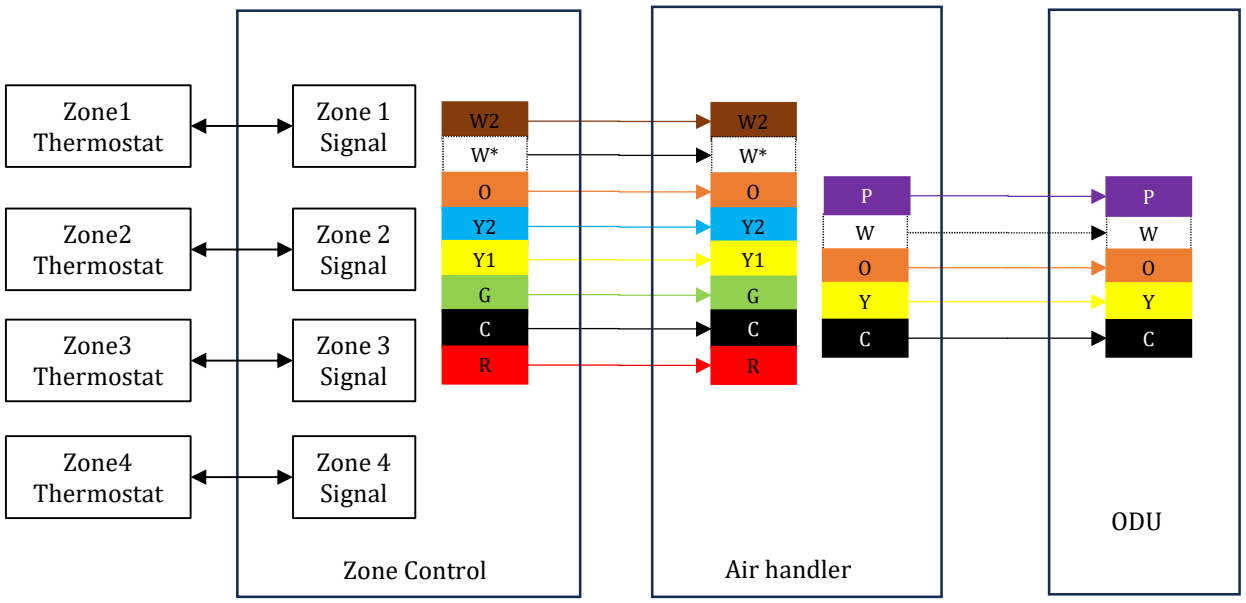


Signal Wiring Diagrams : With Zone control

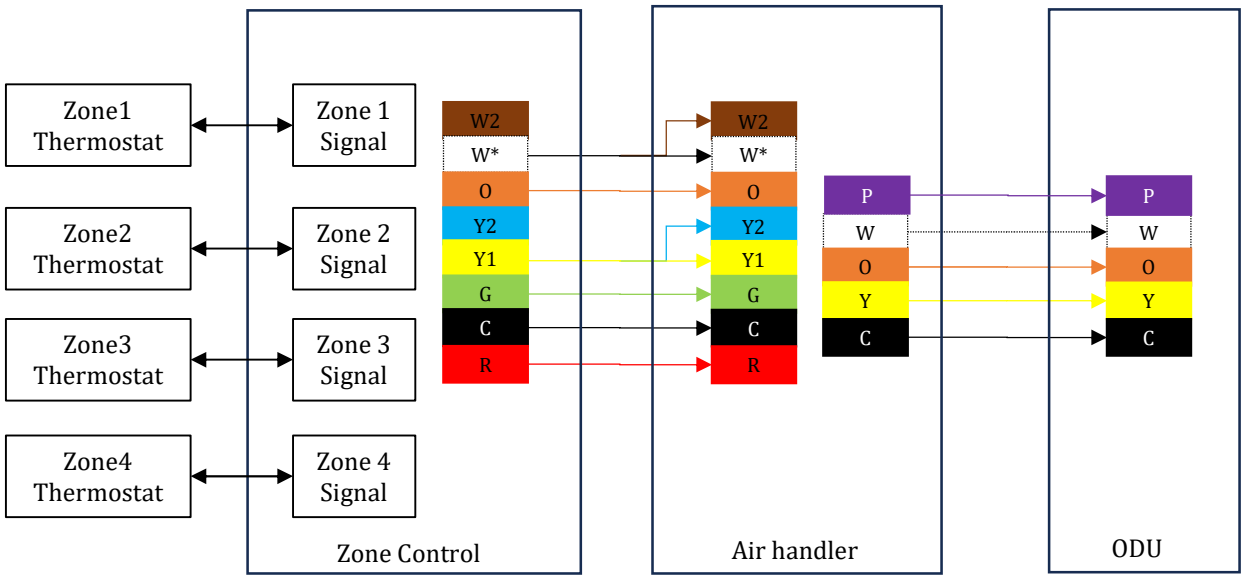
Caution

It is mandatory to install bypass ducts when connecting to the Zone system since our models are equipped with constant air volume motors

- Wiring for 4H2C Zone control (support auto airflow)

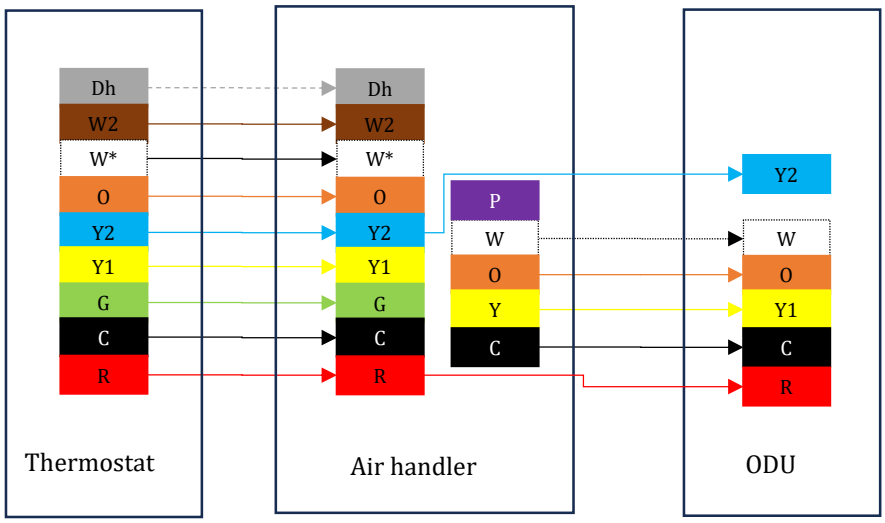


- Wiring for 2H1C Zone control (support auto airflow)

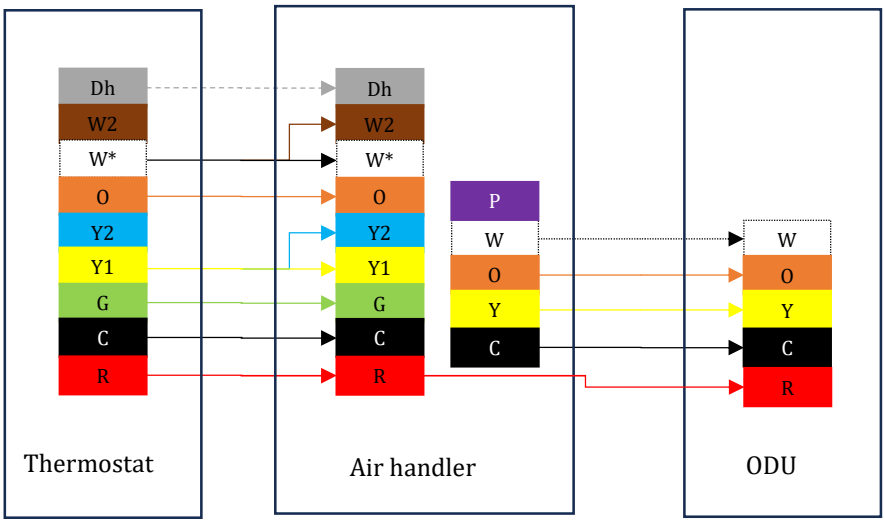


Signal Wiring Diagrams ： With the third Heat Pump

- Wiring for 4H2C thermostat(setting 2-stage airflow)



- Wiring for 2H1C thermostat (setting 2-stage airflow)

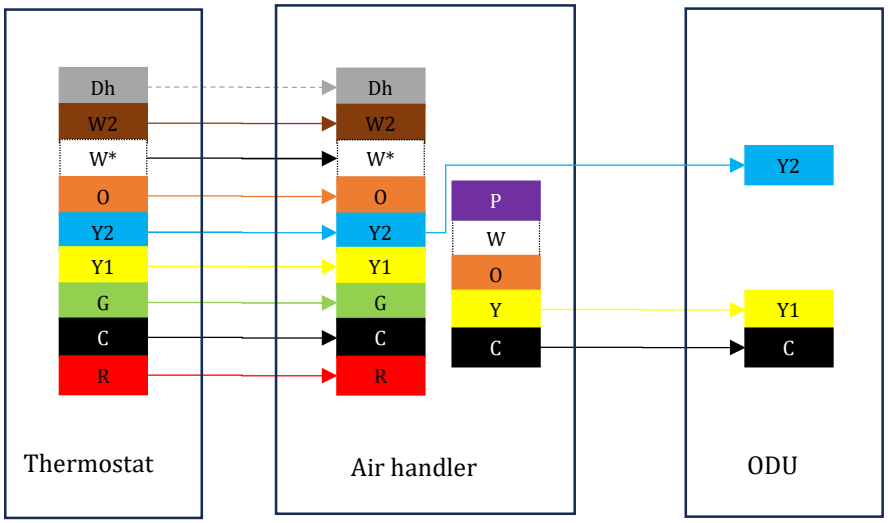


NOTICE

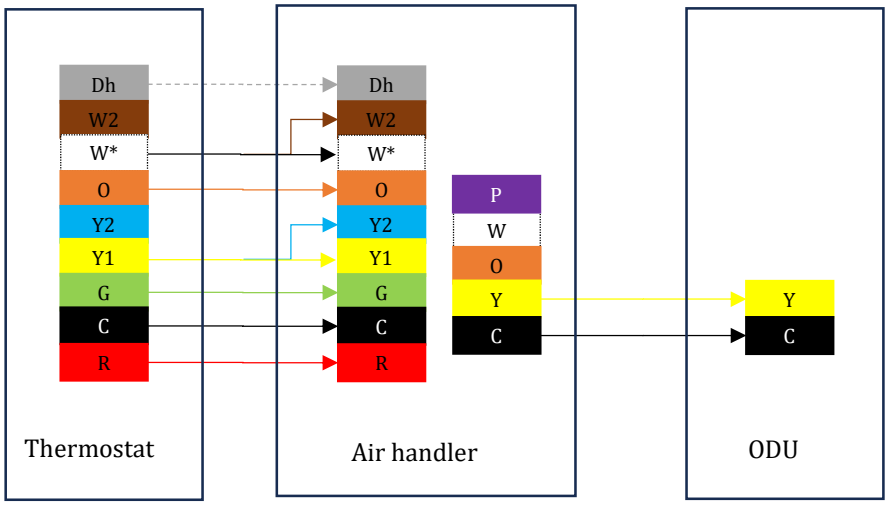
If the third-party ODU does not support capacity adjustment, select 2-stage air volume control by switch

Signal Wiring Diagrams : With the third cooling only

- Wiring for 4H2C thermostat(setting 2-stage airflow)



- Wiring for 2H1C thermostat (setting 2-stage airflow)



NOTICE
If the third-party ODU does not support capacity adjustment, select 2-stage air volume control by switch.

NOTES:
1. Be sure power supply agrees with equipment nameplate.
2. Power wiring and grounding of equipment must comply with local codes.
3. Low voltage wiring to be No. 18 AWG minimum conductor.
4. See the installation instructions and requirements of third-party devices on site.

5.11.3 Grounding

WARNING
The unit must be permanently grounded.
Failure to do so can result in electrical shock causing personal injury or death.

- Grounding may be accomplished by grounding metal conduit when installed in accordance with electrical codes to the unit cabinet. Grounding may also be accomplished by attaching ground wire(s) to ground lug(s) provided in the unit wiring compartment.
- Use of multiple supply circuits require grounding of each circuit to lug(s) provided in the unit.

6. Maintenance

6.1 Test Operation

6.1.1 Weigh-in method

Weigh-in method can be used for the initial installation, or anytime a system charge needs to be replaced. Weigh-in method can also be used when power is not available on the job site or the ambient temperature is improper to use refrigerant coefficient and sub-cooling charge method.

When use weigh-in method in heating mode, be sure the compressor discharge superheat (DSH) meets the target value.
Basically, the liquid line sub-cooling (SC) shall not exceed 30°F.

Use the **gauge port** to charge the system in heating mode and query live data using the BS3 button to calculate DSH (The difference between parameter "11" and "18") or check SC/DSH via ESS Pro App.

Table -1 Charge amount table

A	B	C		D
Model	Factory charge	Indoor	Charge amount for ecoer air handler	Charge multiplier for liquid line length *2
2436	The data on nameplate	24K	0	0.6 oz/ft
		36K	0	
4860		36K	0	
		48K	18oz *1	
		60K	18oz *1	

1. **Every condensing unit is factory charged for the smallest rated indoor coil combinations.** An additional amount of refrigerant adjustment is required for a large indoor coil. It's invalid for system with electric heat or other third-party heat source whose capacity is 1.2 times of heat pump nominal capacity.

2. **The charging guideline is calculated in 25ft of standard size line set.** A refrigerant adjustment may be necessary if the line set length is over the pre-charged 25 ft (adding 0.6 oz/ft on 3/8 liquid line respectively).

6.1.2 Auto charge mode

NOTES:

1. This AUTO charge mode is suitable for ambient temperature between 50°F and 115°F. But for the best results, indoor temperature should be kept between 70°F and 80°F. For outdoor ambient temperature is below 50℉, use weigh-in charge method only.

2. Start-up control is enforced to complete prior to activate the AUTO charge mode. It may take 4 to 10 minutes to exit start-up control procedure and fix the compressor speed (RPS).
3. The service valve is usually closed except in charge mode. If you need to know the suction pressure, you can log in to ESS Pro, or read the parameter of "07" from Spot check.

Enter the charge mode

Turn on the power supply for the system, select **cooling mode** at thermostat. Make sure the setting temperature is lower than indoor temperature for at least 5°F to finish this charge mode *__NOTE1__.
Press and hold BS4 button for five (5) seconds until SEG1 displays blinking 7. After one minute, the system will go into AUTO charge mode *__NOTE2.__

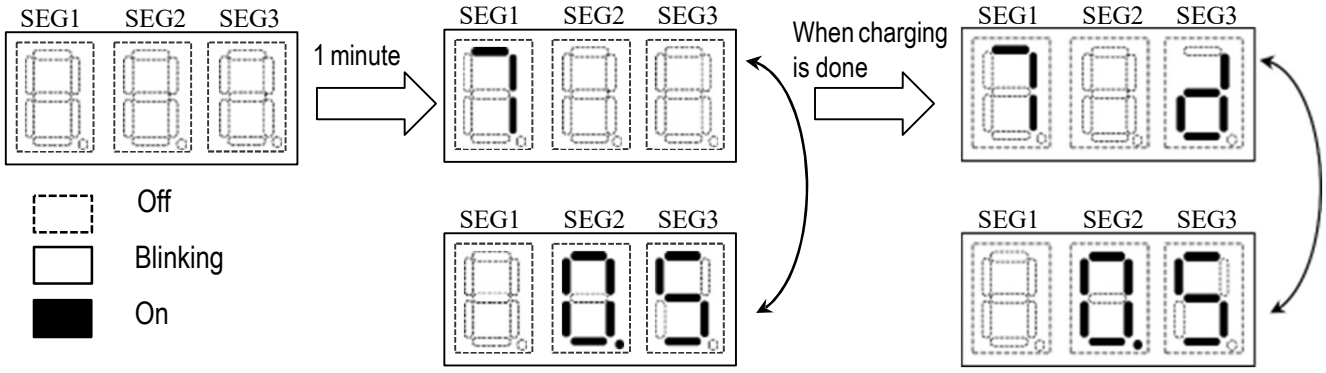
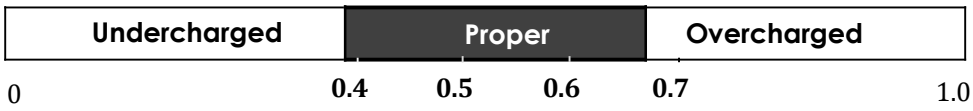


Fig 1 LED display in AUTO charge mode

Run the system for more than 15 minutes and will show the **refrigerant coefficient** number (here short for "X", 0 < X < 1) from the LED display. If keep X ＞0.5 for more than 5 minutes, the LED display will show more "d", which means "done"; or X < 0.5, the system will add more refrigerant through **Fully Automatic Refrigerant Charging** control (when the refrigerant tank is connected) until the charging is done. Kindly, if X < 0.4, refrigerant charging is recommended. Basically, charging is in the case of 9°F ≤ SSH ≤ 20°F, otherwise automatic charging may be affected, if it occurs need to check the cooling throttling device.
When the LED displays "--" for more than 20 minutes, stop charging and check that the evaporator throttle valve of the indoor unit is working correctly.

Refrigerant coefficient

The refrigerant coefficient is used to evaluate the refrigerant level in the ecoer system.



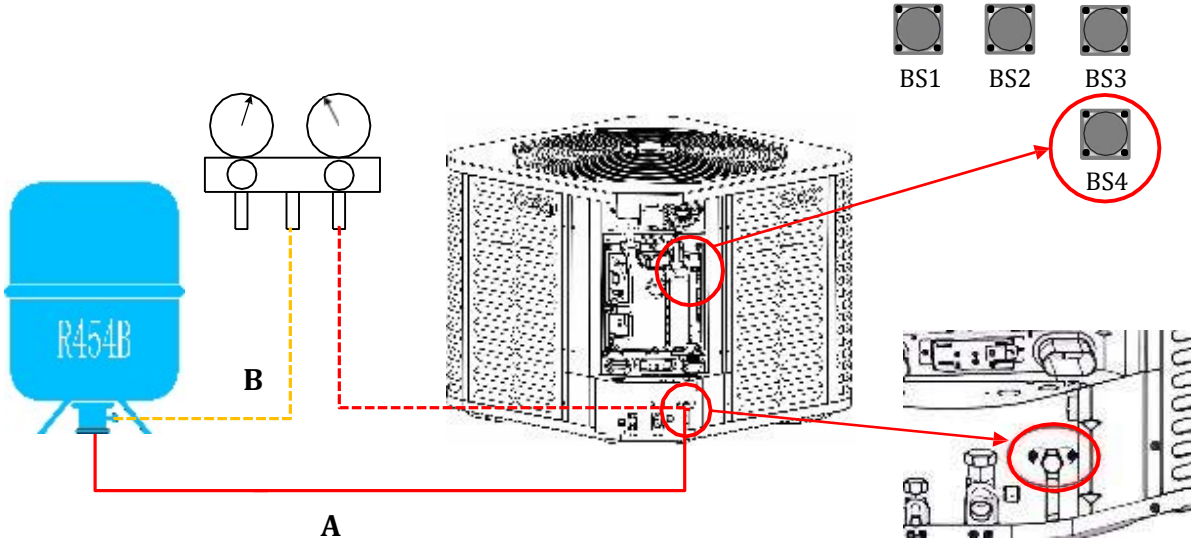
Use either way below to end AUTO charge mode

Press **BS4 once/** After 2 hours running (Automatically EXIT)/ Turn off the system at thermostat

Fully automatic refrigerant charging:

Refrigerant charging if the unit is undercharged:

1. Connect the refrigerant tank to the service gauge port of the unit and open all the service valves.
2. Power on the system and set the thermostat to the cooling mode.
3. Press and hold the BS4 button for 5 seconds until the display starts blinking "7.".
4. Wait for at least 1 hour, and the system will automatically charge the refrigerant to the appropriate level.
5. Remove the refrigeranttank.



Note:

1. Prior to opening the service valves, ensure to purge all the hoses.
2. Make sure to place the refrigerant tank upside down before connecting it.
3. Only one hose (Connection A) is needed for the refrigerant charge. If you want traditional connection, you can also use a pressure gauge (Connection B).

6.1.3 Sub-cooling charge

Refer to the following steps to charge refrigerant by sub-cooling degree in cooling mode.

STEP1 CALCULATE SUPERHEAT ON SUCTION VALVE

Measured suction line temperature = _____℉

Measured suction line pressure =_____PSIG

Calculated superheat value =_____℉

Table 1 Superheat calculation on gas service valve

Suction line TEMP (℉)	Final Superheat (℉)							
	8	10	12	14	16	18	20	22
	Suction Gauge Pressure (PSIG)							
40	91	88	84	80	77	74	71	67
42	95	91	88	84	80	77	74	71
44	99	95	91	88	84	80	77	74
46	103	99	95	91	88	84	80	77
48	107	103	99	95	91	88	84	80
50	111	107	103	99	95	91	88	84
52	116	111	107	103	99	95	91	88
54	120	116	111	107	103	99	95	91
56	125	120	116	111	107	103	99	95
58	129	125	120	116	111	107	103	99
60	134	129	125	120	116	111	107	103
62	139	134	129	125	120	116	111	107
64	144	139	134	129	125	120	116	111
66	149	144	139	134	129	125	120	116
68	154	149	144	139	134	129	125	120
70	160	154	149	144	139	134	129	125
72	166	160	154	149	144	139	134	129

STEP2 CALCULATE SUB-COOLING ON LIQUID VALVE

Measured liquid line temperature = _____℉

Measured liquid line pressure =_____PSIG

Calculated sub-cooling value = _____℉

Add refrigerant if calculated sub-cooling value is lower than the designed one. Repeat the steps above.

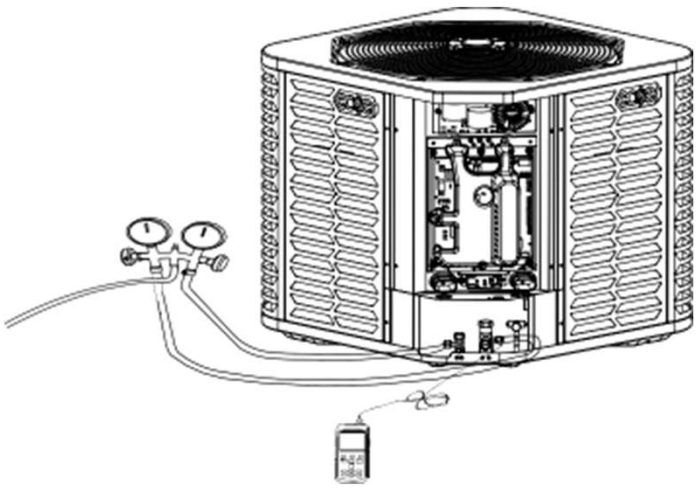


Fig 1 Measure the superheat or sub-cooling

Table 2 Sub-cooling calculation on liquid service valve

Liquid line TEMP (℉)	Final Sub-cooling (℉)							
	6	7	8	9	10	11	12	13
	Liquid Gauge Pressure (PSIG)							
55	164	167	170	173	176	178	182	184
60	178	182	184	188	191	194	197	200
65	194	197	200	203	207	210	213	216
70	210	213	216	220	224	227	231	234
75	227	231	234	238	242	245	249	252
80	245	249	252	256	261	264	268	271
85	264	268	271	276	280	284	288	292
90	284	288	292	296	301	305	310	313
95	305	310	313	318	323	327	332	336
100	327	332	336	341	346	351	356	360
105	351	356	360	366	371	376	381	385
110	376	381	385	390	396	400	406	411
115	400	406	411	417	423	428	434	439
120	428	434	439	445	451	456	463	468
125	456	463	468	474	481	486	493	498

Table 3 Designed sub-cooling degree

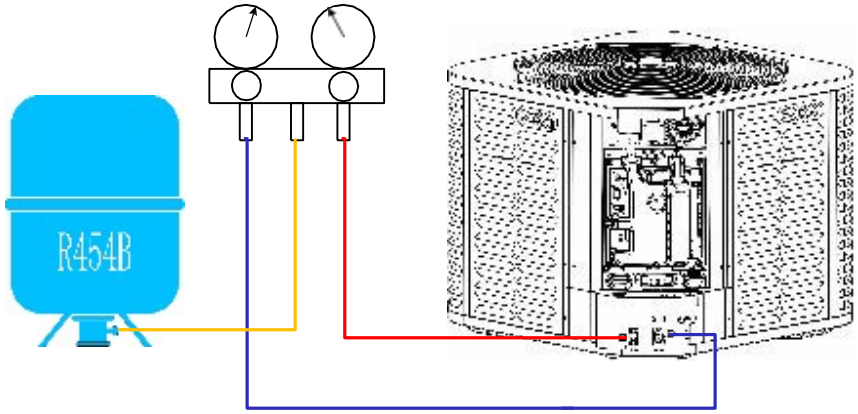
Model	Designed sub-cooling degree (SC)
24	8℉ (±2℉)
36	10℉ (±2℉)
48	10℉ (±2℉)
60	10℉ (±2℉)

STEP3 ADJUST REFRIGERANT LEVEL TO ATTAIN PROPER GAUGE PRESSURE

Add refrigerant if the sub-cooling is lower than the chart value.

1. Connect gauge hoses to refrigerant tank and liquid/gas service valves (Use gauge port instead of gas service valve for charge in heating. Note: The gauge port is normally closed, please enter the auto charge mode for charging).
2. Purge all hoses.
3. Stand the refrigerant tank upside-down and charge.
4. Stop adding refrigerant when sub-cooling matches the charging chart.

Remove refrigerant if the sub-cooling is higher than the chart value.



STEP4 STABILIZE THE SYSTEM

1. Wait five (5) minutes for the unit to stabilize between adjustments. When the sub-cooling matches the chart, the system is properly charged.
2. Remove gauge hoses.
3. Replace and tighten service port caps to prevent leaks. Plus an additional 1/6 turn may be required.

STEP5 RECORD SYSTEM INFORMATION FOR FURTHER REFERENCE

Condensing unit model	
Indoor unit model	
Measured outdoor ambient temperature	℉
Measured indoor ambient temperature	℉
Liquid gauge pressure	PSIG
Suction gauge pressure	PSIG
Measured suction line temperature	℉
Measured liquid line temperature	℉

6.2 Pump down function

Pump down in cooling only

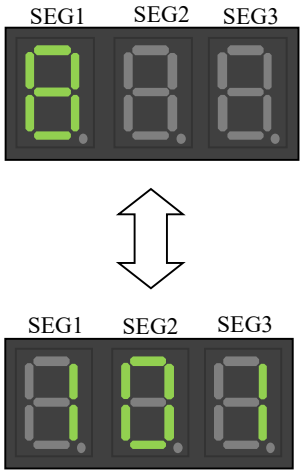
Actuator	Pump down in cooling
Compressor (INV)	Rated compress speed to Low compressor speed
Outdoor fan (FAN)	Cooling fan control
Reversing valve (ST1)	De-energized
Electronic expansion valve (EEV)	480pls

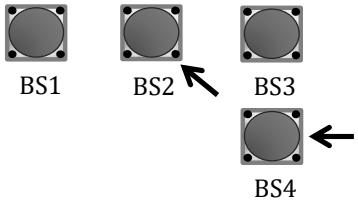
Pump down Step by Step:

1. Setting in cooling mode from thermostat.
*Note: A low target temperature is recommended for continuous operation of the unit.

2. Run for more than 20 minutes.

3. In cooling running, Setting Pomp down mode from OD unit.
Please Hold and press BS4 button for 5 seconds until you see blinking '7', press BS2 button in one minute to get '8'.
*Note: Once pump down is activated. "8" or "8" alternating with LP (PSIG) will be displayed on the LED.





4. Confirm the alternate display of "8" and LP(PSIG), close the liquid service valve, and then close service valve quickly when the suction pressure drops to 40 PSIG.

Note: The pressure protection is valid if LP < 24.5 PSIG.
Note: It is recommended to close the two service valves to half first to deal with LP protection shutdown more quickly.

5. Power off.

Use either way below to end :
Press BS4/shut off from thermostat/Power off/running for120 minutes.

6.3 EEV Maintenance Guide

6.3.1 Electronic expansion valve

- Table 1 provides compatibility details for different electronic expansion valves (EEVs) and lists their corresponding compatible product series.
- When replacing an EEV in an ecoer product, the after-sales warehouse will dispatch a repair kit, which includes: **EEV valve body & EEV coil**
- After replacing the electronic expansion valve, the EEV coil must also be replaced simultaneously to ensure proper operation.

Parts Name	Series	Model number
Electronic expansion valve E.AC.2312100013	Decades	EODA18H-2436
	Decades Extreme	EODA18H-2436B
	TDi pro	EODA19H-2436AAA
	TDi pro 2	EODA19H-2436ABA
Electronic expansion valve E.AC.2312100007	Decades	EODA18H-4860
	Decades Extreme	EODA18H-4860B
	TDi pro	EODA19H-4860AAA
	TDi pro 2	EODA19H-4860ABA
		EAHDEN-24ABA
		EAHDEN-36ABA
Electronic expansion valve E.AC.2312100101	TDi pro 2	EAHDEN-48ABA
		EAHDEN-60ABA

Table 1

Important: The EEV coil must be replaced simultaneously with the electronic expansion valve during unit servicing.

6.3.2 EEV coil

- Table 2 details the cross-compatibility between EEV coil models and supported product series.

Parts Name	Series	Model number
EEV solenoid coil E.AC.2309100027	Decades	EODA18H-2436
		EODA18H-4860
	Decades Extreme	EODA18H-2436B
		EODA18H-4860B
	TDi pro	EODA19H-2436AAA
		EODA19H-4860AAA
	TDi pro 2	EODA19H-2436ABA
		EODA19H-4860ABA
		EAHDEN-24ABA
		EAHDEN-36ABA
		EAHDEN-48ABA
		EAHDEN-60ABA

Table 2

- When an Ecoer product requires EEV coil replacement, the service warehouse will dispatch a parts kit containing two EEV coils, only one of which is compatible with the unit's electronic expansion valve. Service technicians should refer to this service guide to select the correct EEV coil, ensuring proper matching with the unit's electronic expansion valve.

Parts Name	Coils quantity in the package	Component Image
EEV solenoid coil E.AC.2309100027	2 (Important: These two coils originate from different suppliers.)	

Table 3

- **Replacement Procedure for EEV Coil:**

1. Verify Model & Appearance: Refer to Table 4(next page) to confirm the model number and physical appearance of the faulty coil.
2. Select Matching Coil: From the spare parts bag, choose a replacement coil with the exact same model number and physical characteristics as the faulty one.
3. Install New Coil: Reinstall the new coil following the original mounting method.

Important: The replacement EEV coil must be of the same model as the original faulty coil. Otherwise, it will not be compatible with the unit's electronic expansion valve!

Parts Name	Component Image		
	External View of the Coil	Internal View of EEV Assembly	EEV Valve
EEV solenoid coil E.AC.2309100027			
			

Table 4

7. Product Features

7.1 Default display

LED on main control board can display the operating status of outdoor unit (ODU).

SEG1: Normally blank, but it displays codes "0 to 9" accordingly if there is damaged sensor and command response.

SEG1 Code	Description
0	Software is updating through IoT device
1	High pressure sensor (HP) fault backup running
2	Low pressure sensor (LP) fault backup running
3	Compressor discharge temperature sensor (TD) fault backup running
4	IPM module temperature sensor (TF) fault backup running
5	Ambient temperature sensor (TA) fault backup running
6	Defrost sensor (TH) fault backup running
7	Compressor suction temperature sensor (TS) fault backup running
8	Liquid line temperature sensor (TL) fault backup running
9	IoT command response

SEG2: Normally blank, but it will display code accordingly as below if outdoor unit is running under limited condition.

SEG2 Code	Description
0	Running under high pressure limit
1	Running under low pressure limit
2	Running under discharge temperature limit
3	Running under IPM module temperature limit
4	Running under compressor current limit

SEG3: It displays outdoor unit's operation mode.

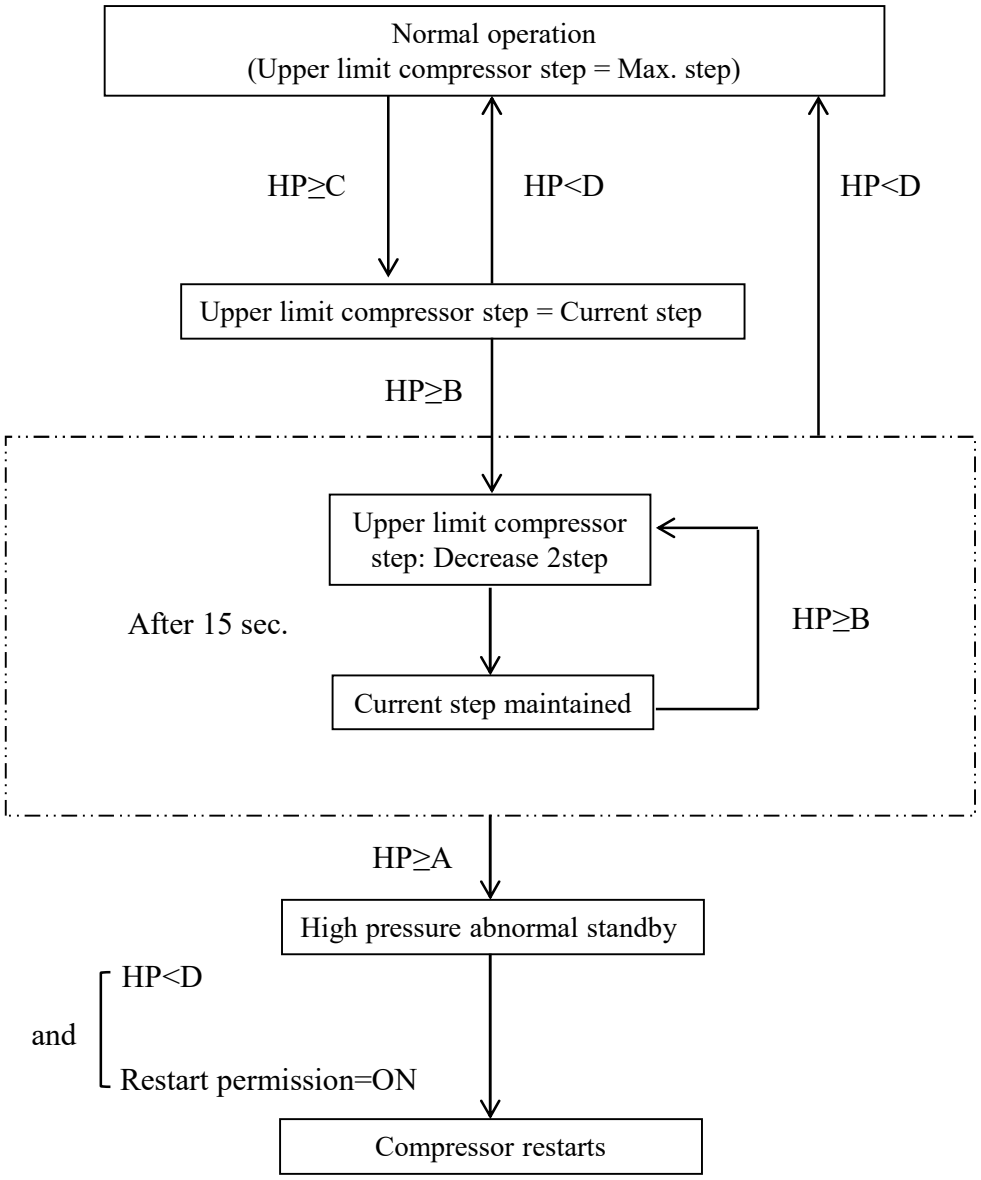
SEG3 Code	Description
0	Stop (Y signal de-energized)
1	Ready to start-up ***NOTE**
2	Cooling
3	Heating
4	Oil return
5	Defrost
6	Manual defrost
7	AUTO charge mode in cooling
8	Pump down

NOTE: Compressor waits three to eight (8)minutes to restart.

7.2 Protection controls

7.2.1 High pressure protection control

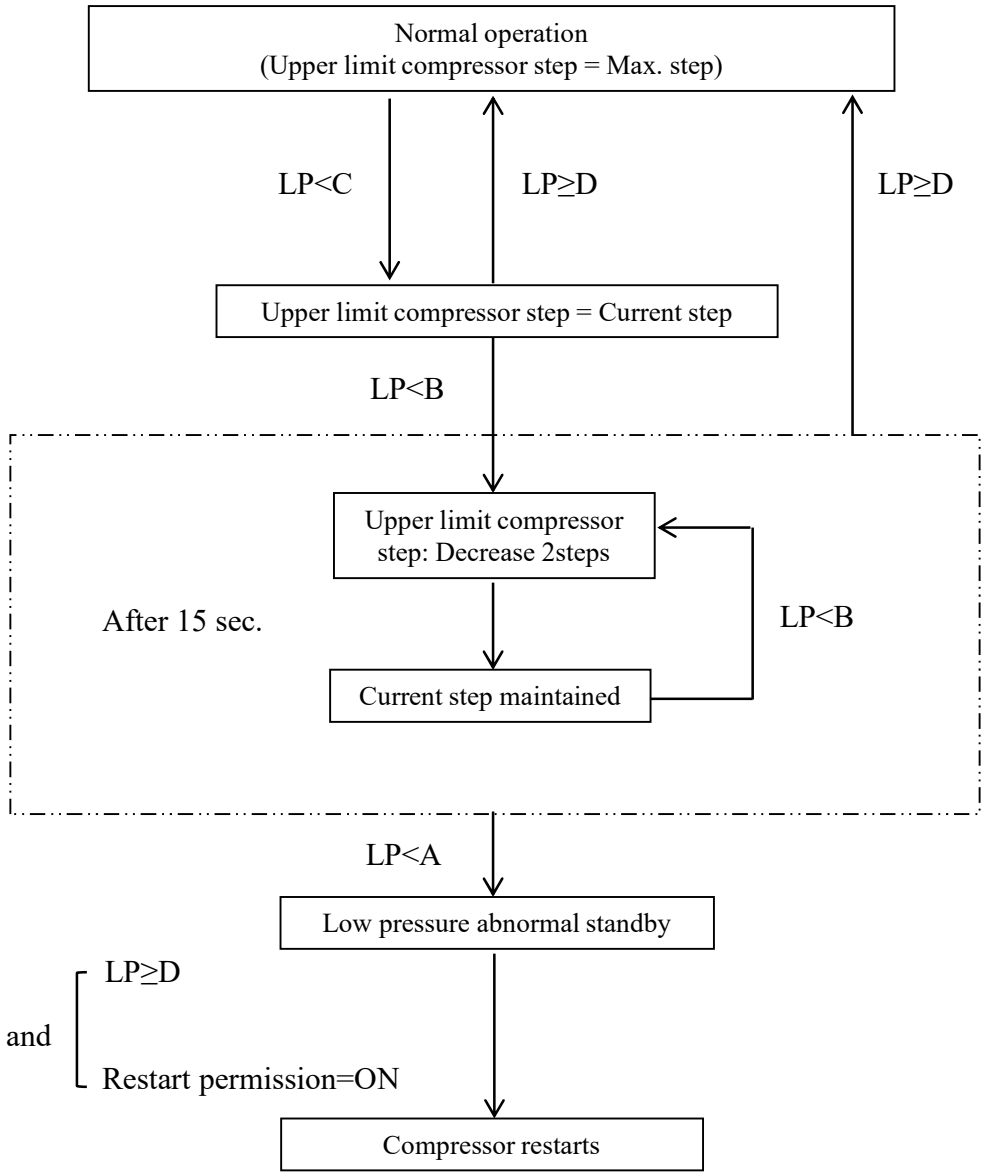
High pressure (HP) protection control is used to prevent extremely high pressures in the system and protect the compressor.



Symbol	EODA19H-2436ABA /4860ABA	
	Cooling	Heating
A	558psig [3.85MPa]	534psig [3.68MPa]
B	511psig [3.52MPa]	489psig [3.37MPa]
C	489psig [3.37MPa]	467psig [3.22MPa]
D	477psig [3.29MPa]	445psig [3.07MPa]

7.2.2 Low pressure protection control in cooling mode

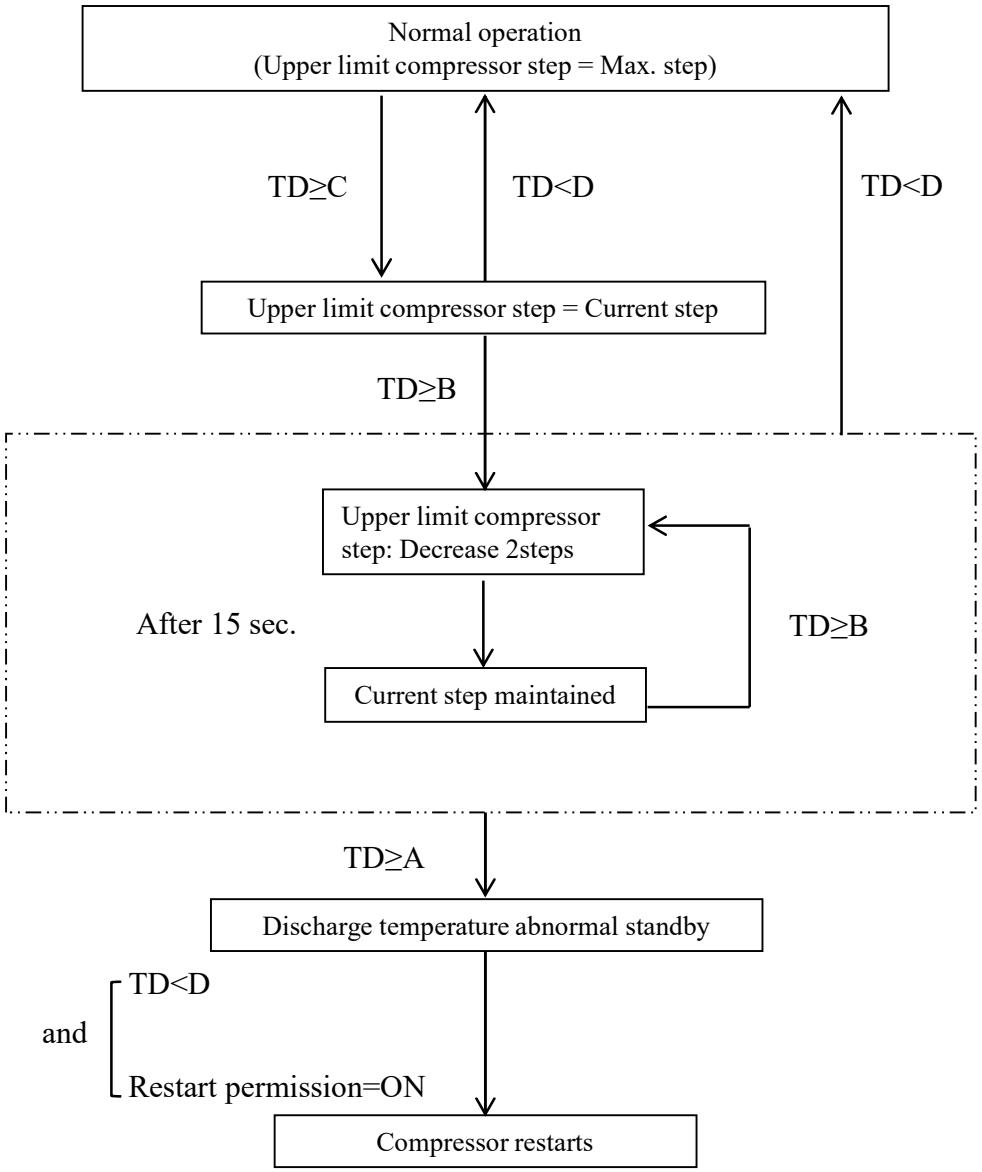
Low pressure (LP) protection control in cooling is used to protect compressor against the transient decrease of low pressure.



Symbol	EODA19H-2436ABA /4860ABA	
	Cooling	Heating
A	24.5psig [0.17MPa]	0psig [0MPa]
B	43.5psig [0.30MPa]	14.5psig [0.10MPa]
C	61.0psig [0.42MPa]	20.3psig [0.14MPa]
D	72.5psig [0.50MPa]	23.2psig [0.16MPa]

7.2.3 Discharge temperature protection control

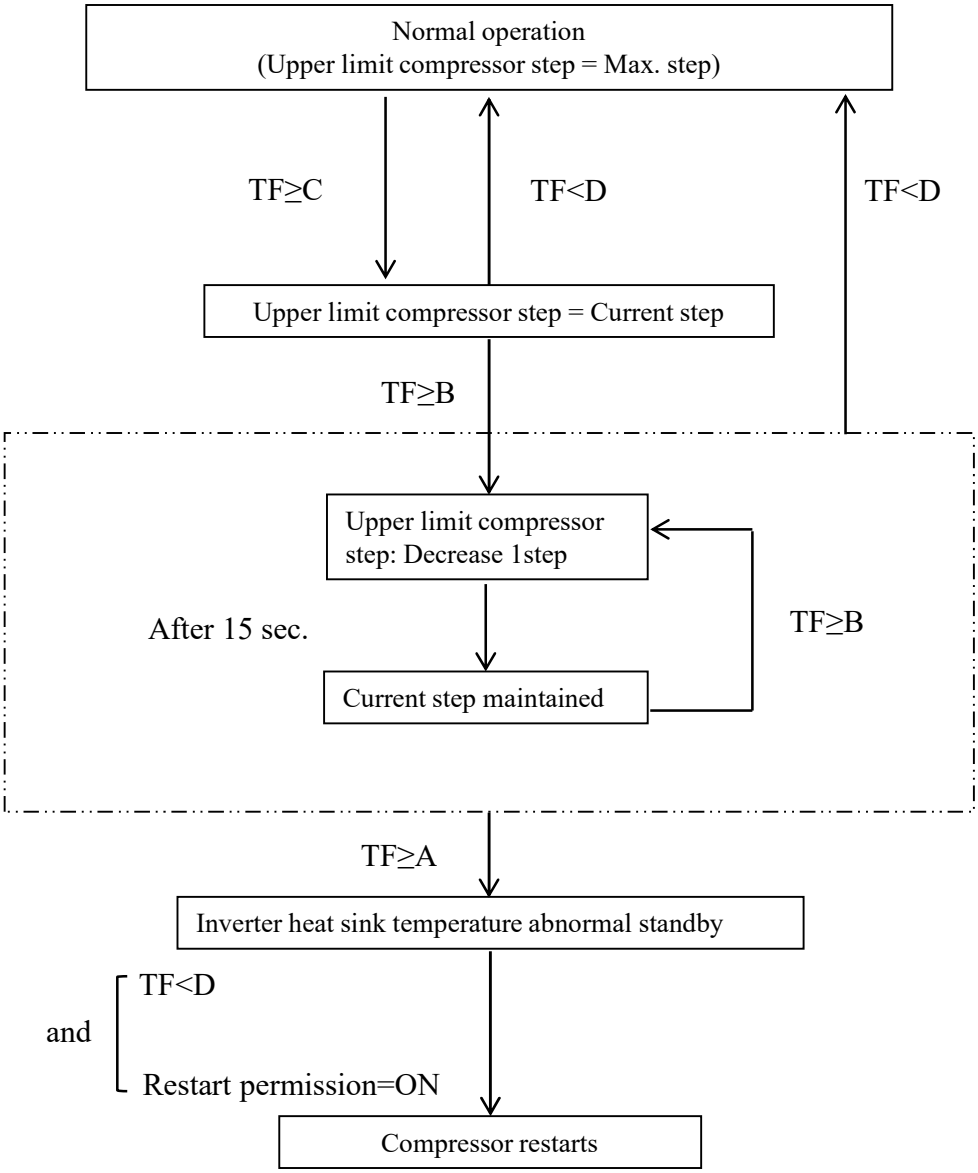
This discharge temperature (TD) protection control is used to protect the compressor internal temperature against a malfunction or transient increase of discharge pipe temperature.



Symbol	EODA19H-2436ABA /4860ABA	
	Cooling	Heating
A	230°F (110°C)	212°F (100°C)
B	212°F (100°C)	203°F (95°C)
C	203°F (95°C)	194°F (90°C)
D	194°F (90°C)	185°F (85°C)

7.2.4 INV Module temperature protection control

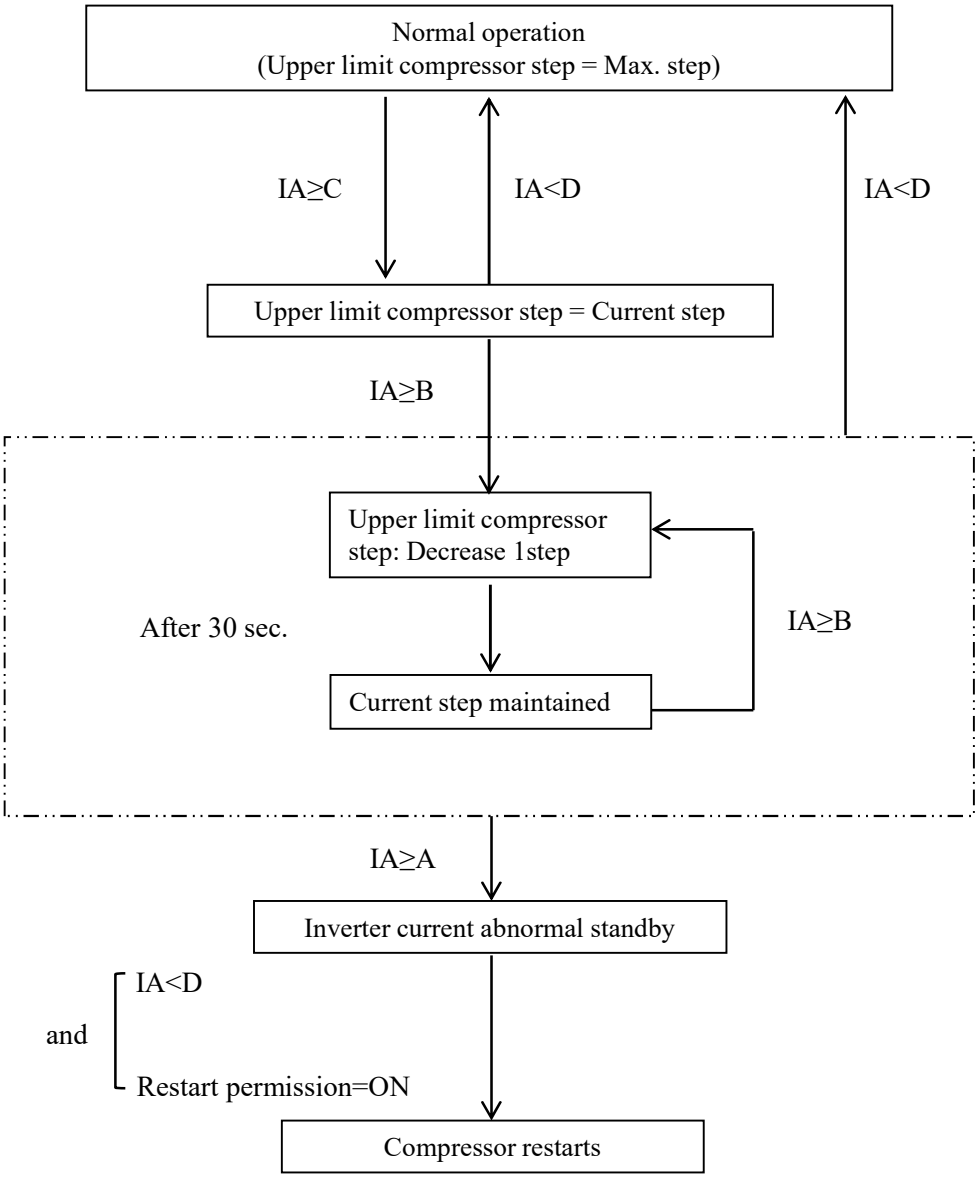
Inverter module temperature (TF) protection control is performed to prevent tripping due to an abnormal increase in temperature.



Symbol	EODA19H-2436ABA		EODA19H-4860ABA	
	Cooling	Heating	Cooling	Heating
A	180°F (82°C)	176°F (80°C)	180°F (82°C)	176°F (80°C)
B	174°F (79°C)	167°F (75°C)	174°F (79°C)	167°F (75°C)
C	171°F (77°C)	160°F (71°C)	171°F (77°C)	160°F (71°C)
D	167°F (75°C)	154°F (68°C)	167°F (75°C)	154°F (68°C)

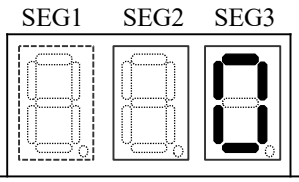
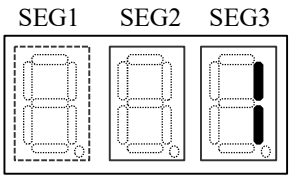
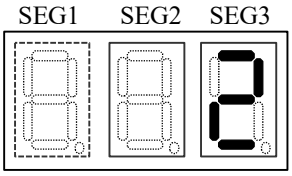
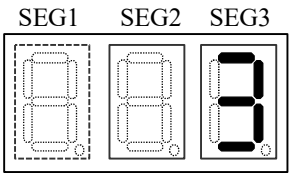
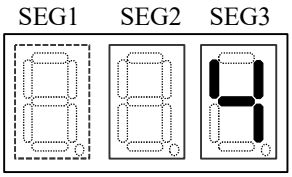
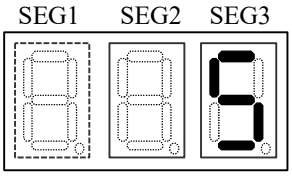
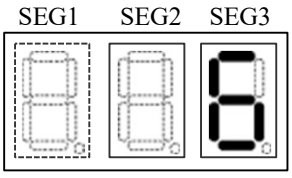
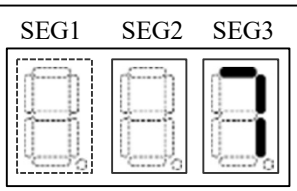
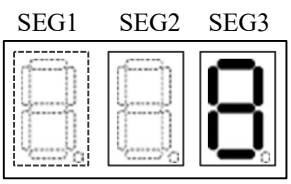
7.2.5 Compressor over-current protection control

This control is performed to prevent tripping due to an abnormal transient compressor current (IA).



Symbol	EODA19H-2436ABA		EODA19H-4860ABA	
	Cooling	Heating	Cooling	Heating
A	14A	14A	20A	20A
B	10.0A	10.0A	13.0A	13.0A
C	9.6A	9.6A	12.6A	12.6A
D	9.2A	9.2A	12.0A	12.0A

Modes list (SEG3 Display)

Stop or standby	
Ready to start-up	
Cooling	
Heating	
Oil return	
Defrost	
Manual defrost	
AUTO charge mode in cooling	
Pump down	

7.3 Control logic description

7.3.1 Defrost control

This system carries out demand defrost control if any one of the following conditions is satisfied.

I. The calculated temperature difference between ambient temperature (TA) and defrost temperature (TH) is called Delta T. After Delta T is achieved and continues for 5 minutes.
   a) TA is between 41°F and 59°F: TH ≤ 30°F, Delta T =18°F
   b) TA is between 19°Fand 41°F: TH ≤ 30°F, Delta T = 12~18°F
   c) TA is less than 19°F: TH < 9°F, accumulative compressor run time ≥ 80 minutes

   TH back-up running: TA < 59°Fand LP ≤ 90PSIG, accumulative compressor run time ≥ 60 minutes

II. After "Minimum Run Time" (MRT) is achieved.
   a) MRT is 3.5 hours if TA is less than 23°F
   b) MRT is 2 hours if TA is between 23°Fand 43°F

   The high pressure drops below 245PSIG for 20 minutes if TA is between 14°F and 28°F.

EXIT:
Defrost will be terminated once defrost temperature sensor (TH) reaches 64°F for one (1) minute or the defrost time has exceeded eight (8) minutes.

SETTING:

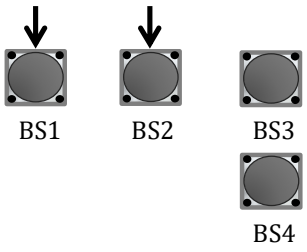
Defrost mode setting (n04) offers termination options for different geographical conditions.

a) Defrost in heavy snow area will extend defrost for one (1) minute, but reduce the heating time to execute more defrost cycles.
b) Defrost in light snow area will reduce defrost for 30 seconds.

7.3.2 Manual Defrost

Manual defrosting mode can be used when verifying defrosting or forcing defrosting.

Note: After 5-10 minutes of continuous heating operation, the unit can respond to manual defrosting in time; otherwise, the unit will enter after meeting the requirements.



Enter in either way:

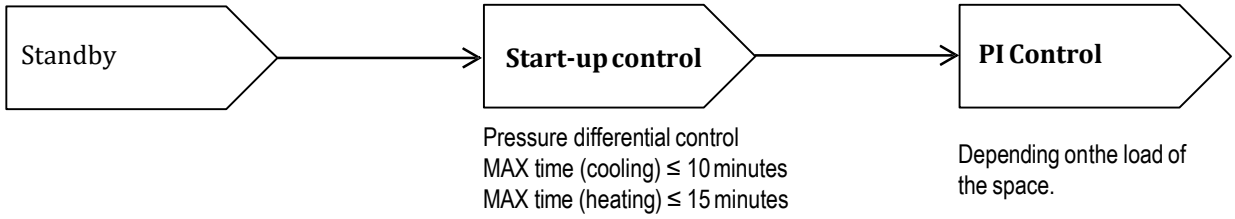
a. n08 setting;

b. Hold on BS1+BS2 for more than 5 seconds, release and wait about 1 minute.

Exit in either way:

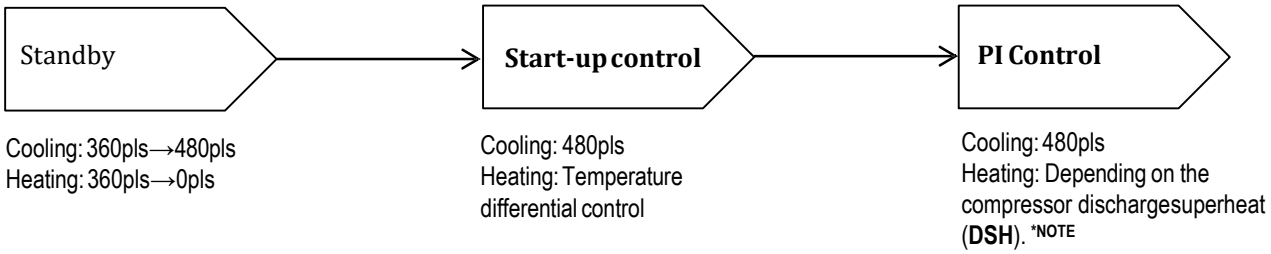
Defrost exit automatically/Heating demand off/Power off

7.3.4 Compressor control



Outdoor Capacity	2ton	3ton	4ton	5ton
Cooling/Heating Min RPS	20	20	20	20
Cooling Max RPS	76	90	70	80
Heating Max RPS	98	112	94	104

7.3.5 Outdoor electronic expansion valve (EEV) control



NOTE: Heating DSH should be between 25°F and 60°F with proper refrigerant level.

- **Overcharged:** DSH is less than 18 °F with EEV opening < 72pls.
- **Undercharged:** DSH is higher than 60 °F with EEV opening ≥ 460pls

7.3.6 Silent mode

In order to decrease the noises produced by condensing unit, the crucial noise resources should be limited. Once the silent mode has been activated by n05, n06 and n07 (refer to field setting), both the highest compressor frequency (RPS) and fan speed (RPM) are limited.

Maximum compressor frequency

Cooling Max Compressor RPS			
Condenser Capacity	Standard Mode	Silent Mode (Level 1)	Super Silent Mode (Level 2)
2Ton	76	66	56
3Ton	90	80	70
4Ton	70	64	56
5Ton	80	70	62

Heating Max Compressor RPS			
Condenser Capacity	Standard Mode	Silent Mode (Level 1)	Super Silent Mode (Level 2)
2Ton	98	84	70
3Ton	112	96	84
4Ton	94	82	70
5Ton	104	90	76

Maximum fan speed

Max Fan Speed (RPM)			
Condenser Capacity	Standard Mode	Silent Mode (Level 1)	Super Silent Mode (Level 2)
2Ton	880	640	530
3Ton	930	730	580
4Ton	980	780	580
5Ton	980	830	630

7.3.7 Snow Sensor Control

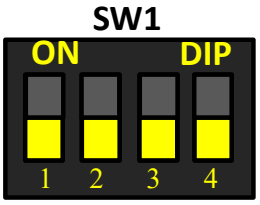
To prevent the fan of condensing unit from covering up by heavy ice. Ecoer equips with the snow sensor control function if the ambient temperature is no higher than 41F.
When the snow sensor control works, ODM rotate at the 3th step for 2min then shut down.

ODU	OD Fan Tap	Heavy Snow	Standard	Light Snow
2/3T	STEP3	30 min	90 min	120 min
4/5T	STEP3			

7.4 Setting by dip switches

Condensing functions can be applied by dipping switch and pressing buttons.

SW1 Dip switch		Description	
NO.	Setting item	Status	Content
1	Snow Sensor Control	ON	Disable
		OFF (factory)	Enable
2	Capacity selection	ON	2 or 4 Ton
		OFF (factory)	3 or 5 Ton
3	AC only / Heat pump	ON	AC only
		OFF (factory)	Heat pump
4	Command *a response for IoT	ON	Disable
		OFF (factory)	Enable

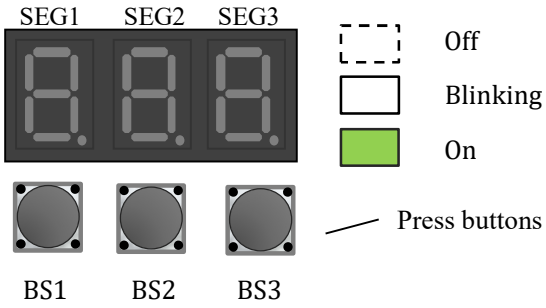


Use minor straight screwdriver to dip switch. Must power off the unit for at least two minutes to activate the change.

* Remote field setting, troubleshooting, software updates and so on.

7.5 Setting by pressing buttons

Query and setting operations can be done by pressing buttons on main control board.

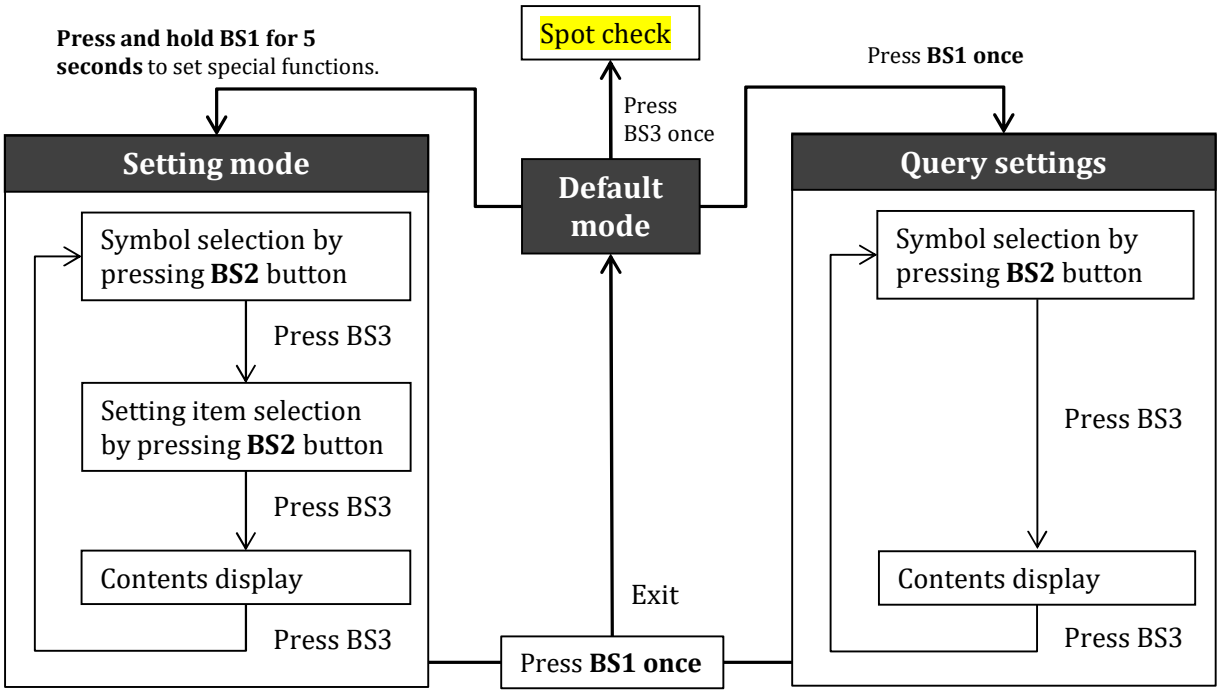


BS1: Menu or back button

BS2: UP button

BS3: Spot check and confirm button

Remarks: Press or tip any directions are valid.

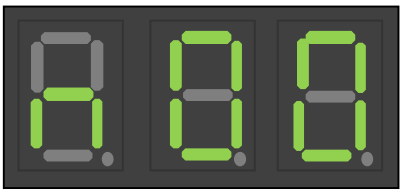
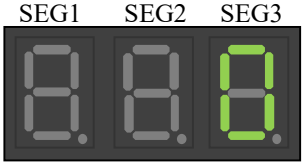
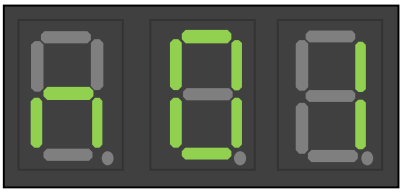
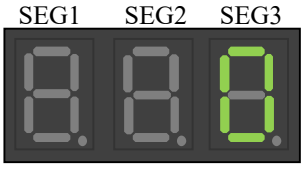
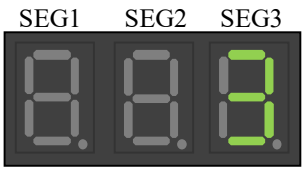
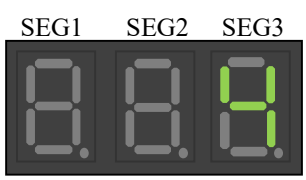


7.6 Setting mode

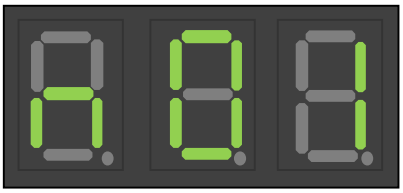
Symbol	Function	Item	Description
n00	Mode choice	0 (factory)	Normal (Energy Saving) mode
		1	Dry mode *1
		2	High capacity mode *2
n01	Forced heat pump stop when ambient temperature is lower than specified value. Switching to heat by gas furnace or boiler in cold winter.	0	Stop heat pump when TA<-22°F
		1 (factory)	Stop heat pump when TA<-3°F
		2	Stop heat pump when TA<15 °F
		3	Stop heat pump when TA<30 °F
		4	Stop heat pump when TA<40°F
		5	Stop heat pump when TA<20°F
		6	Stop heat pump when TA<25°F
		7	Stop heat pump when TA<35°F
		8	Stop heat pump when TA<50°F
n02	Indoor second heater for outdoor unit outputs 24VAC at W terminal (CN5).	0 (factory)	ON (Electric auxiliary heater)
		1	OFF (Furnace or Boiler)
n03	Outdoor unit outputs 24VAC at W terminal (CN5) when ambient temperature is lower than specified value to start indoor electric auxiliary heater.	0 (factory)	TA<15°F (24VAC output)
		1	TA<30°F (24VAC output)
		2	TA<40°F (24VAC output)
		3	TA<-3°F (24VAC output)
		4	OFF
		5	TA<20°F(24VAC output)
		6	TA<25°F(24VAC output)
		7	TA<35°F(24VAC output)
		8	TA<50°F(24VAC output)
n04	Defrost mode setting *3	0	Defrost in heavy snow area
		1 (factory)	Standard mode
		2	Defrost in light snow area
n05	Silent mode setting	0 (factory)	None silent mode
		1	Silent mode (level 1)
		2	Super silent mode (level 2)
		3	Night silent mode (level 1)
		4	Night super silent mode (level 2)
n06	Night silent setting- start time	0	17:00
		1 (factory)	18:00
		2	19:00
		3	20:00
		4	21:00
n07	Night silent setting- end time	0	5:00
		1 (factory)	6:00
		2	7:00
		3	8:00
		4	9:00
n08	Forced defrost	0 (factory)	OFF
		1	ON *4
n18	Product Series setting	4	TDi Pro 2 series

Manufacturer reserves the right to change specifications or designs without notice.

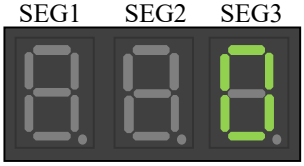
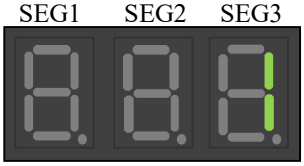
Symbol: n00 & n01

Symbol Display	Item	Description
SEG1 SEG2 SEG3 	SEG1 SEG2 SEG3 	Normal (Energy Saving) mode
	SEG1 SEG2 SEG3 	Dry mode: The evaporating temperature of indoor coil can drop down to 28°F.
	SEG1 SEG2 SEG3 	High capacity mode: The evaporating temperature of indoor coil can drop down to 28°F in cooling mode, and the condensing temperature can go up to 122°F in heating mode.
SEG1 SEG2 SEG3 	SEG1 SEG2 SEG3 	Forced heat pump stop when ambient temperature <-22°F. Switching to heat by gas furnace or boiler in cold winter.
	SEG1 SEG2 SEG3 	Forced heat pump stop when ambient temperature <-3°F. Switching to heat by gas furnace or boiler in cold winter.
	SEG1 SEG2 SEG3 	Forced heat pump stop when ambient temperature <15°F. Switching to heat by gas furnace or boiler in cold winter.
	SEG1 SEG2 SEG3 	Forced heat pump stop when ambient temperature <30°F. Switching to heat by gas furnace or boiler in cold winter.
	SEG1 SEG2 SEG3 	Forced heat pump stop when ambient temperature <40°F. Switching to heat by gas furnace or boiler in cold winter.

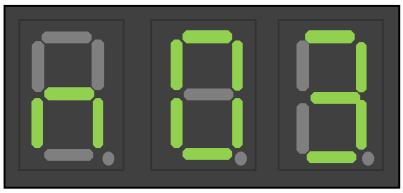
Symbol: n01

Symbol Display	Item	Description
SEG1 SEG2 SEG3 	SEG1 SEG2 SEG3 	Forced heat pump stop when ambient temperature <-20°F. Switching to heat by gas furnace or boiler in cold winter.
	SEG1 SEG2 SEG3 	Forced heat pump stop when ambient temperature <25°F. Switching to heat by gas furnace or boiler in cold winter.
	SEG1 SEG2 SEG3 	Forced heat pump stop when ambient temperature <35°F. Switching to heat by gas furnace or boiler in cold winter.
	SEG1 SEG2 SEG3 	Forced heat pump stop when ambient temperature <50°F. Switching to heat by gas furnace or boiler in cold winter.

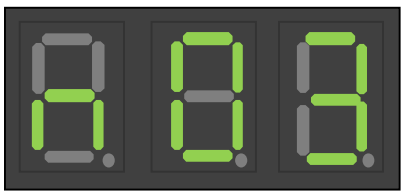
Symbol: n02 & n03

Symbol Display	Item	Description
SEG1 SEG2 SEG3 	SEG1 SEG2 SEG3 	Indoor second heater for outdoor unit outputs 24VAC at W terminal (CN5):Electric auxiliary heater
	SEG1 SEG2 SEG3 	Indoor second heater for outdoor unit outputs 24VAC at W terminal (CN5):Furnace or Boiler

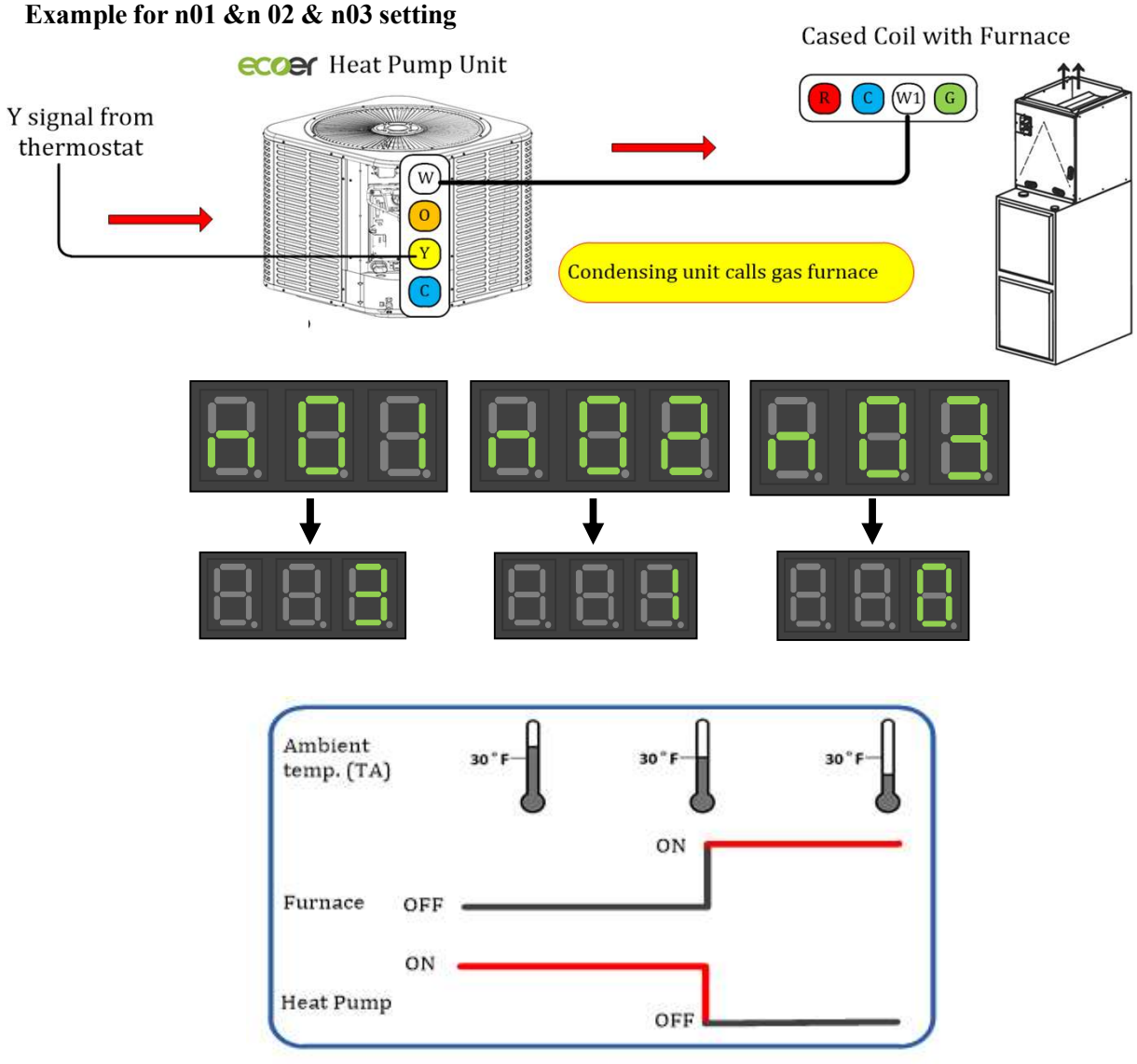
Symbol: n02 & n03 (The activation condition for n03 requires n02 to be configured to 0)

Symbol Display	Item	Description
SEG1 SEG2 SEG3 	SEG1 SEG2 SEG3 	Start indoor electric auxiliary heater when ambient temperature (TA) <15°F
	SEG1 SEG2 SEG3 	Start indoor electric auxiliary heater when ambient temperature (TA) <30°F
	SEG1 SEG2 SEG3 	Start indoor electric auxiliary heater when ambient temperature (TA) <40°F
	SEG1 SEG2 SEG3 	Start indoor electric auxiliary heater when ambient temperature (TA) <-3°F
	SEG1 SEG2 SEG3 	Indoor electric auxiliary heater off
	SEG1 SEG2 SEG3 	Start indoor electric auxiliary heater when ambient temperature (TA) <20°F
	SEG1 SEG2 SEG3 	Start indoor electric auxiliary heater when ambient temperature (TA) <25°F

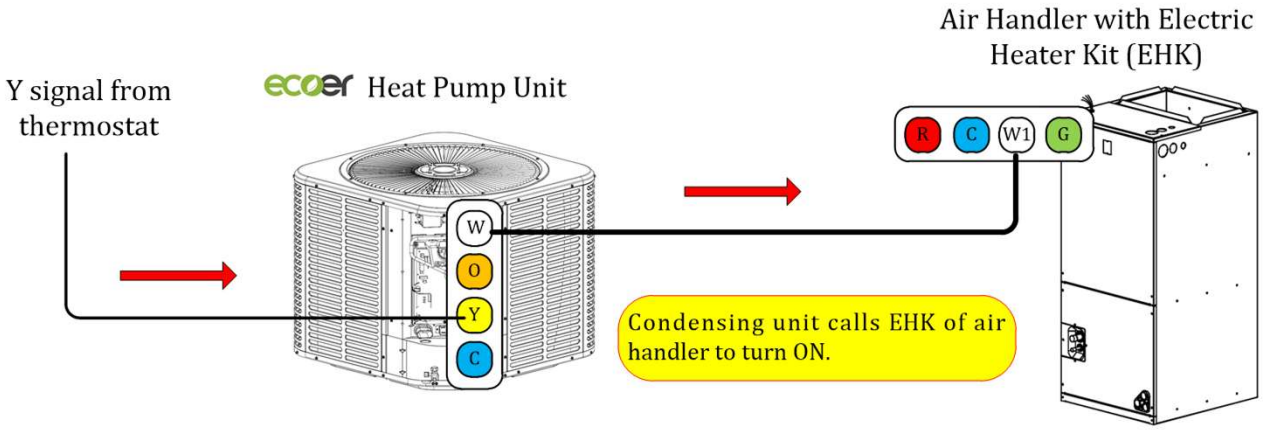
Symbol : n03 (The activation condition for n03 requires n02 to be configured to 0)

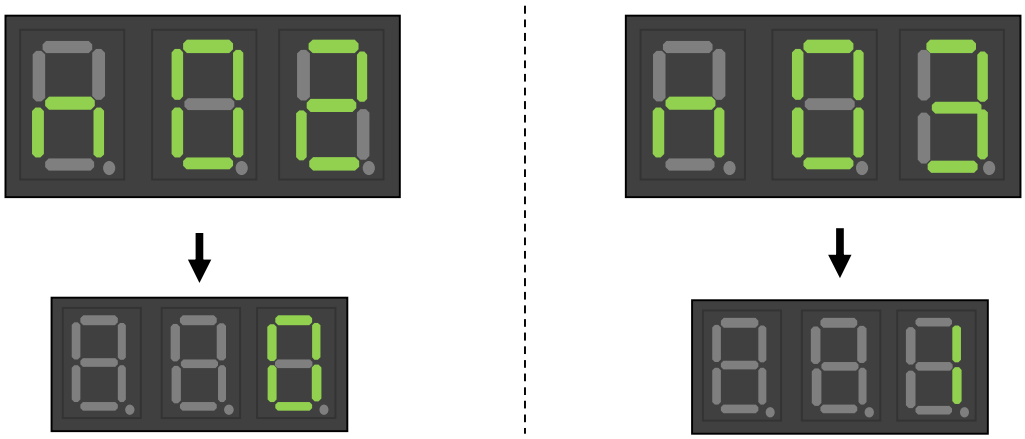
Symbol Display	Item	Description
SEG1 SEG2 SEG3 	SEG1 SEG2 SEG3 	Start indoor electric auxiliary heater when ambient temperature (TA) <35°F
	SEG1 SEG2 SEG3 	Start indoor electric auxiliary heater when ambient temperature (TA) <50°F

Example for n01 &n 02 & n03 setting



Example for n02 & n03 (Dual-heating) setting

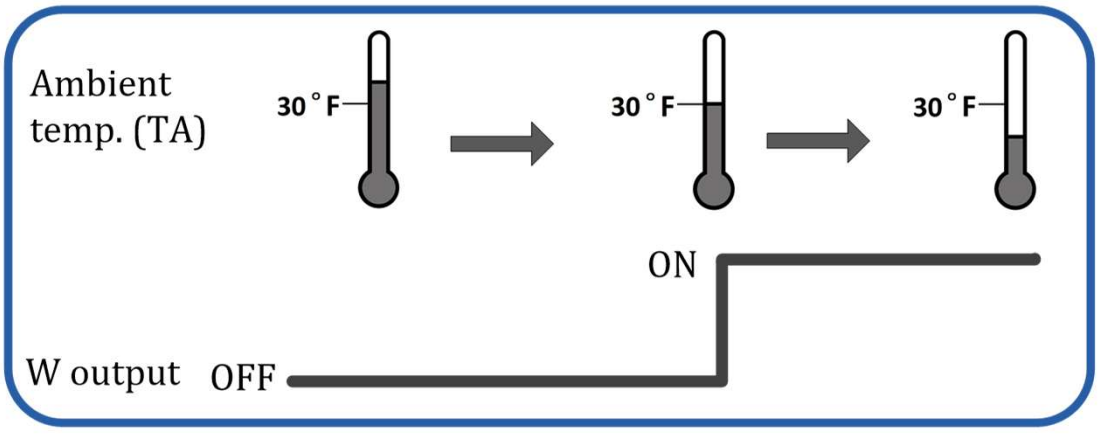




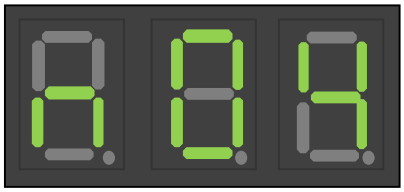
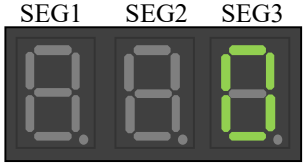
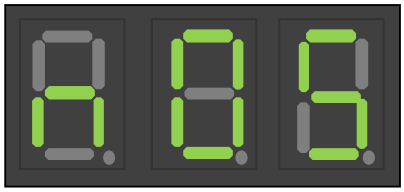
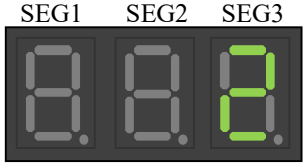
Example:

W outputs 24VAC when TA< 30°F.

n02 = 0
n03 = 1



Symbol: n04 & n05

	Item	Description
SEG1 SEG2 SEG3 	SEG1 SEG2 SEG3 	Defrost mode in heavy snow area: Heating time will reduce about 10% compare to standard defrost.
	SEG1 SEG2 SEG3 	Standard defrost mode
	SEG1 SEG2 SEG3 	Defrost in light snow area: Heating time will increase about 10% compare to standard defrost.
SEG1 SEG2 SEG3  * More details about silent mode, please refer to Section 7.3.6	SEG1 SEG2 SEG3 	None silent mode
	SEG1 SEG2 SEG3 	Silent mode (level 1) Noise of silent mode is about 3 dB lower than normal mode.
	SEG1 SEG2 SEG3 	Super silent mode (level 2) Noise of super silent mode is about 6 dB lower than normal mode.
	SEG1 SEG2 SEG3 	Night silent mode (level 1) Noise of silent mode is about 3 dB lower than normal mode.
	SEG1 SEG2 SEG3 	Night super silent mode (level 2) Noise of super silent mode is about 6 dB lower than normal mode.

Symbol: n06 & n07

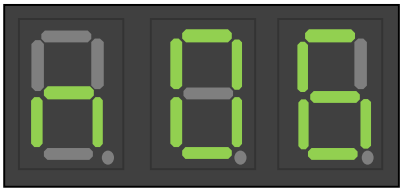
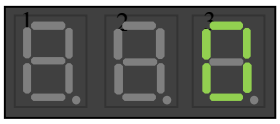
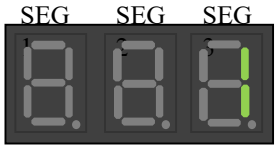
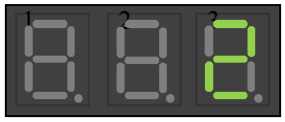
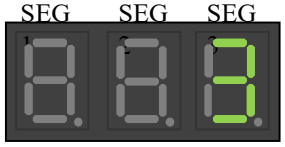
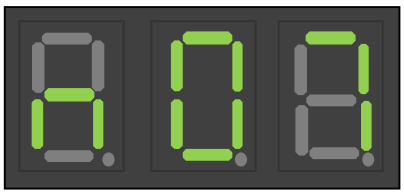
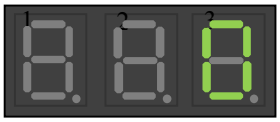
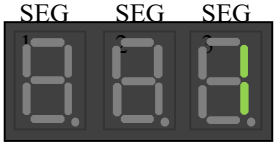
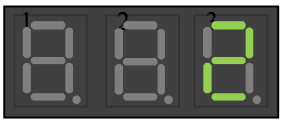
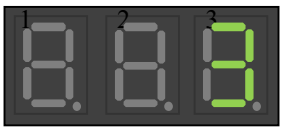
Symbol Display	Item	Description
SEG1 SEG2 SEG3 	SEG SEG SEG 	Night silent setting- start at 17:00
	SEG SEG SEG 	Night silent setting- start at 18:00
	SEG SEG SEG 	Night silent setting- start at 19:00
	SEG SEG SEG 	Night silent setting- start at 20:00
	SEG SEG SEG 	Night silent setting- start at 21:00
SEG1 SEG2 SEG3 	SEG SEG SEG 	Night silent setting- end at 5:00
	SEG SEG SEG 	Night silent setting- end at 6:00
	SEG SEG SEG 	Night silent setting- end at 7:00
	SEG SEG SEG 	Night silent setting- end at 8:00
	SEG SEG SEG 	Night silent setting- end at 9:00

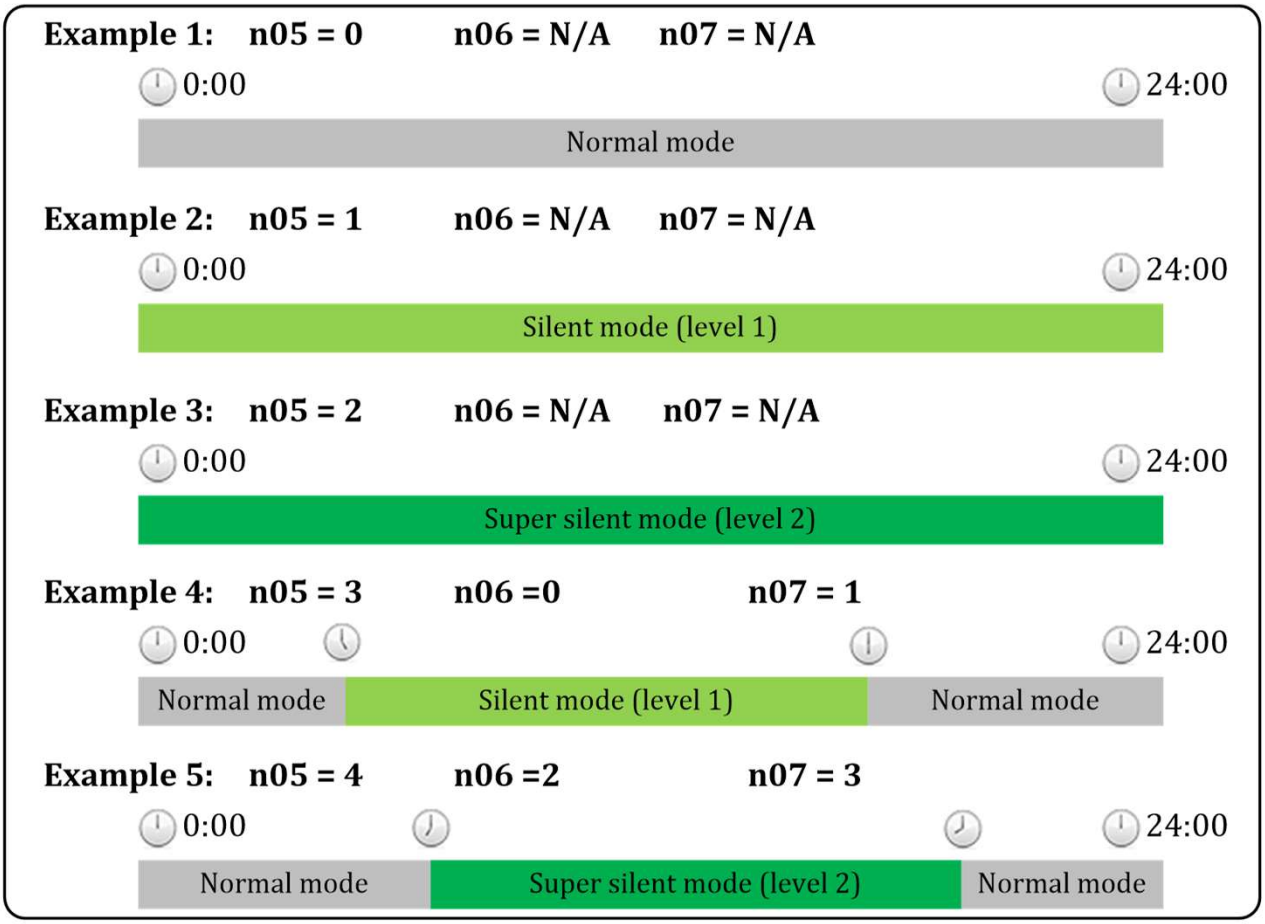
Illustration for n05 to n07 settings

n05
Silent mode setting.

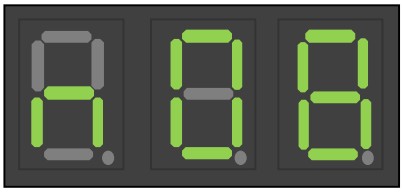
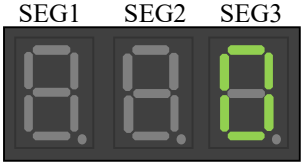
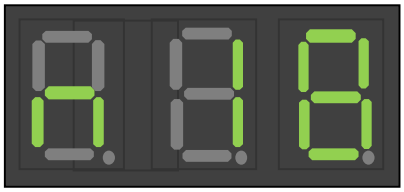
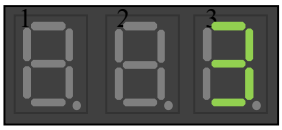
0: None silent mode --Factory
1: Silent mode (level 1)
2: Super silent mode (level 2)

3: Night silent mode (level 1)
4: Super night silent (level 2)

n06 Night time setting - Start time.	**n07** Night time setting - End time.
0: 17:00	0: 5:00
1: 18:00 (Factory)	1: 6:00 (Factory)
2: 19:00	2: 7:00
3: 20:00	3: 8:00
4: 21:00	4: 9:00



Symbol: n08 & n17

Symbol Display	Item	Description
SEG1 SEG2 SEG3  n08 is temporary setting and reverts to default after operation.	SEG1 SEG2 SEG3 	Forced defrost off (factory)
	SEG1 SEG2 SEG3 	Forced defrost on
SEG1 SEG2 SEG3 	SEG 1 SEG 2 SEG 3 	Series: TDi Pro series
	SEG 1 SEG 2 SEG 3 	Series: TDi Pro 2 series

8. Troubleshooting

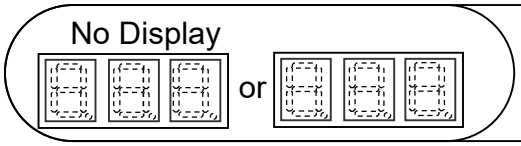
8.1 Problems without Codes

If the system does not operate properly or if there are any malfunctions. Check the system based on the following procedures.

Symptoms	Possible causes	Solutions
System does not start-up but the digital tube shows normally	• No 24 VAC for Y signal from thermostat. • Incompatible thermostat	• Be sure Y/O/C wirings are connected correctly and the cooling/heating setting temperature at thermostat is proper • Use other traditional 24VAC thermostats
System operates mode reversely	• Incorrect O/B signal selection	• Choose **O for cooling** at thermostat
System cannot cool well	• Outside temperature is too high • Outside temperature is too low • Dirty air filter or blocked duct • Lack of refrigerant • Refrigerant has been blocked in the condenser coil	• Normal protection control to limit RPS • Ensure the cooling loads • Replace the air filter and eliminate any obstacles. • Check refrigerant amount or any leaks. • Counterclockwise the TXV (Make sure the refrigerant coefficient is 0.6)
System cannot heat well	• Outside temperature is too low but no third-party heat inside • The outdoor coil is dirty or has been covered by heavy snow • Dirty air filter • Micro channel coil has been used for heat pump • Lack of refrigerant	• Install auxiliary heat for backup *__Dual-heating__ is recommended • Clean the outdoor coil • Replace the air filter • No micro channel coils shall be used for heat pump • Check refrigerant amount or any leaks

Remarks:
Ecoer systems are compatible with most traditional 24VAC thermostats.

⚠ CAUTION
Reversing valve is energized (208/230VAC) in heating mode.



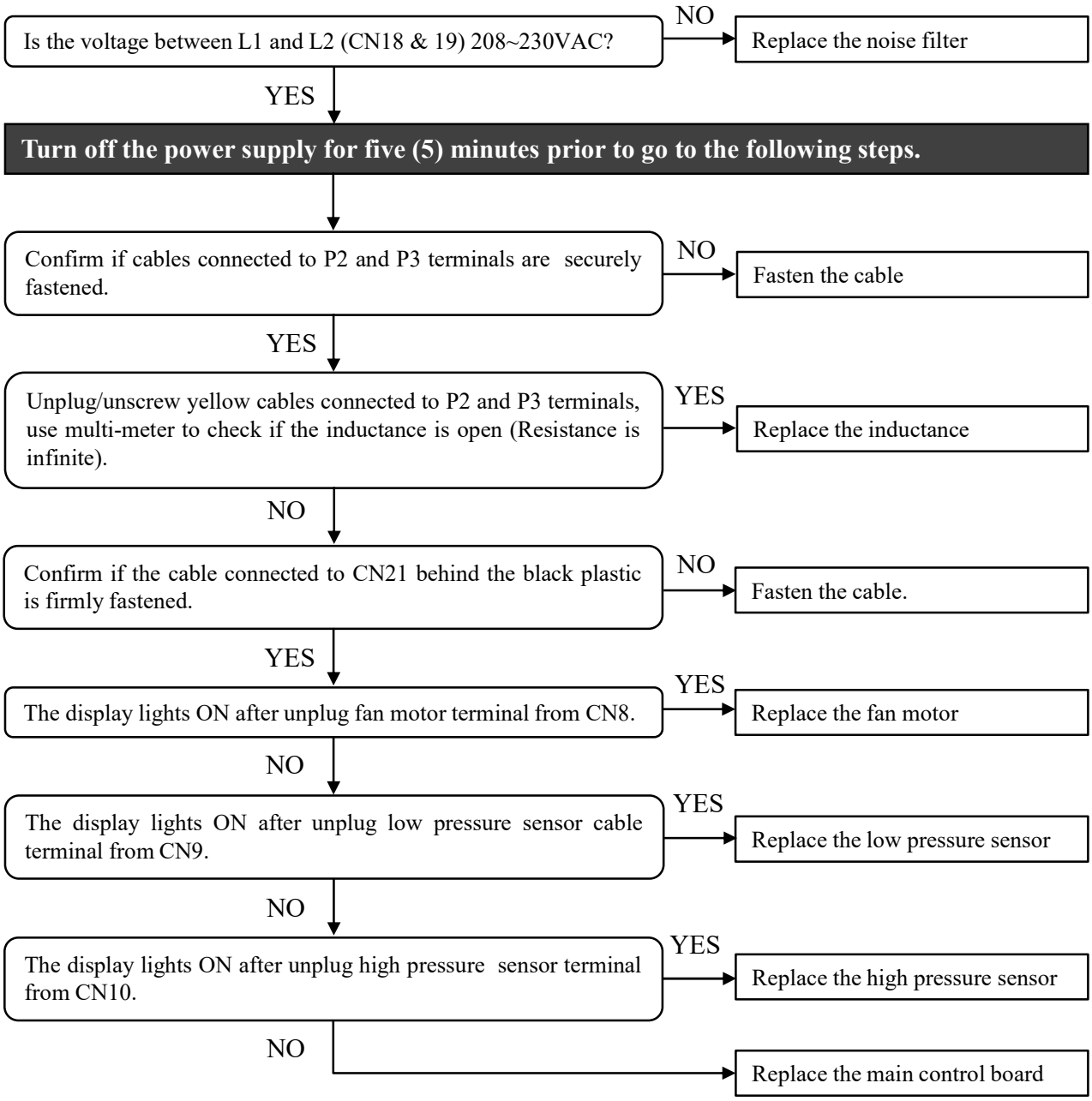
The unit energized but the digital tube shows nothing

1.Error definition:

No display on main control board even though the unit has been powered ON.

2.Possible causes:

- Damaged noise filter
- Damaged inductance
- Loose connection at port on main control board
- Damaged pressure sensor
- Damaged fan motor
- Damaged main control board



8.2 Error Codes List

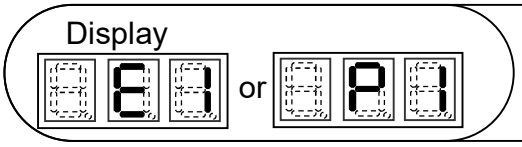
Error codes can be inquired by BS3 button, and seen on Ecoer Smart Service Pro App. **Sign in App >Files >Service, refer to Ecoer Decades Pro service manual for troubleshooting details.**

Code	Description	Legend
P1	High pressure protection	
E1	System locks up when P1 has occurred six times in 3 hours.	Cannot restart *1
P2	Low pressure protection in cooling mode	
E2	System locks up when P2 has occurred six times within 3 hours.	Cannot restart *1
P3	Compressor discharge temperature (TD) protection	
E3	System locks up when P3 has occurred six times within 3 hours.	Cannot restart *1
P4	Compressor discharge temperature (TD) sensor error	
P5	Inverter module temperature (TF) protection	
E5	System locks up when P5 has occurred six times within 3 hours.	Cannot restart *1
P6	Compressor over-current protection	
E6	System locks up when P6 has occurred six times within 3 hours.	Cannot restart *1
P7	Liquid slugging protection	
E7	System locks up when P7 has occurred three times within 5 hours.	Cannot restart *1
P8	Low compressor voltage protection	
E8	System locks up when P8 has occurred three times within an hour.	Cannot restart *1
P9	Incorrect compressor line sequence	Cannot restart *1
PA	DC fan motor over-load protection	Cannot restart *1
F1	Ambient temperature (TA) sensor fault	Backup running*2
F2	Compressor suction temperature (TS) sensor fault	Backup running*2
F3	Liquid line temperature (TL) sensor fault	Backup running*2
F4	Defrost temperature (TH) sensor fault	Backup running*2
F5	Compressor discharge temperature (TD) sensor fault	Backup running*2
F6	Inverter module temperature (TF) sensor fault	Backup running*2
F7	High pressure (HP) sensor fault	Backup running*2
F8	Low pressure (LP) sensor fault	Backup running*2
E4	Communication fault between main chip and INV drive chip	Cannot restart *1
H0	Heavy undercharge limit operation	
H1	Ambient temperature limit operation in cooling	
H2	Ambient temperature limit operation in heating	
H3	Abnormal switch alarm for reversing valve	Alarm
H4	Defrost temperature (TH) sensor error	
H5	EEPROM fault	
H6	Low voltage alarm	
HF	Abnormal function control	Alarm
H8	Indoor refrigerant leakage alarm	
C0-CC	Compressor INV module protection	
E0	System locks up when C0~CA has occurred three times within an hour.	Cannot restart *1

Remarks:

1. Disconnect power supply switch for 5 minutes to reset, then turn on power supply for the unit.
2. Unit goes to backup running under sensors fault varies from 7 to 120 days. Allow up to two (2) sensors backup running at the same time.

8.3 Troubleshooting by Error Code



High pressure protection

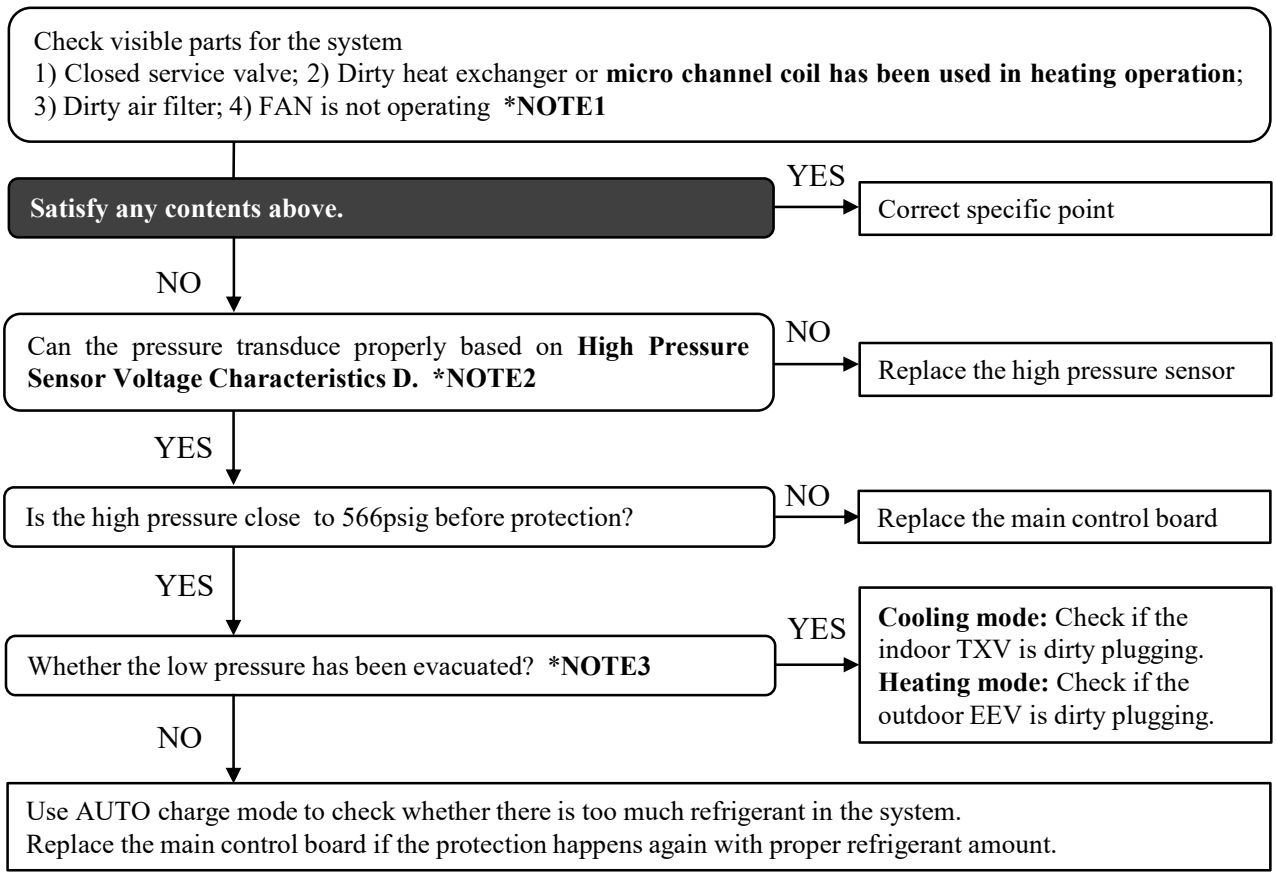
1.Error definition:

P1: The detected high pressure is no less than 566psig.

E1: System locks up when P1 has occurred six times within 3 hours.

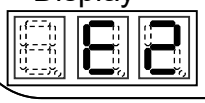
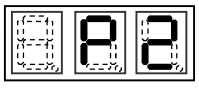
2.Possible causes:

- Service valves are closed
- The system has been severely over-charged
- Dirty/Clogged heat exchanger of outdoor unit in cooling mode
- Dirty indoor air filter or micro channel coil has been used for heat pump
- The refrigerant blocked in high pressure zone because of damaged TXV/EEV
- The Dual Fuel setting is incorrect, causing the furnace and heat pump to run simultaneously.
- Damaged indoor fan motor or G signal lost resulting in indoor unit FAN stops in heating
- Damaged high pressure sensor
- Damaged main control board



NOTES:

1. It's normal control if heating oil return operation is enforced to execute even though the Y signal=OFF (Indoor fan stops because there is No G signal). **Or connect R and G together to judge if the fan works. Yes-> Replace the indoor PCB; No-> Replace the indoor motor.**
2. Connect a pressure gauge to liquid service valve in cooling mode, gas service valve in heating mode. Compare the value difference between gauged pressure and the transduced one by high pressure sensor (spot check by BS3 button or check the data from ESS Pro App).
3. Abnormal TXV/EEV will lead to the refrigerant blockage in the high pressure side.

Display  or 

Low pressure protection in cooling mode

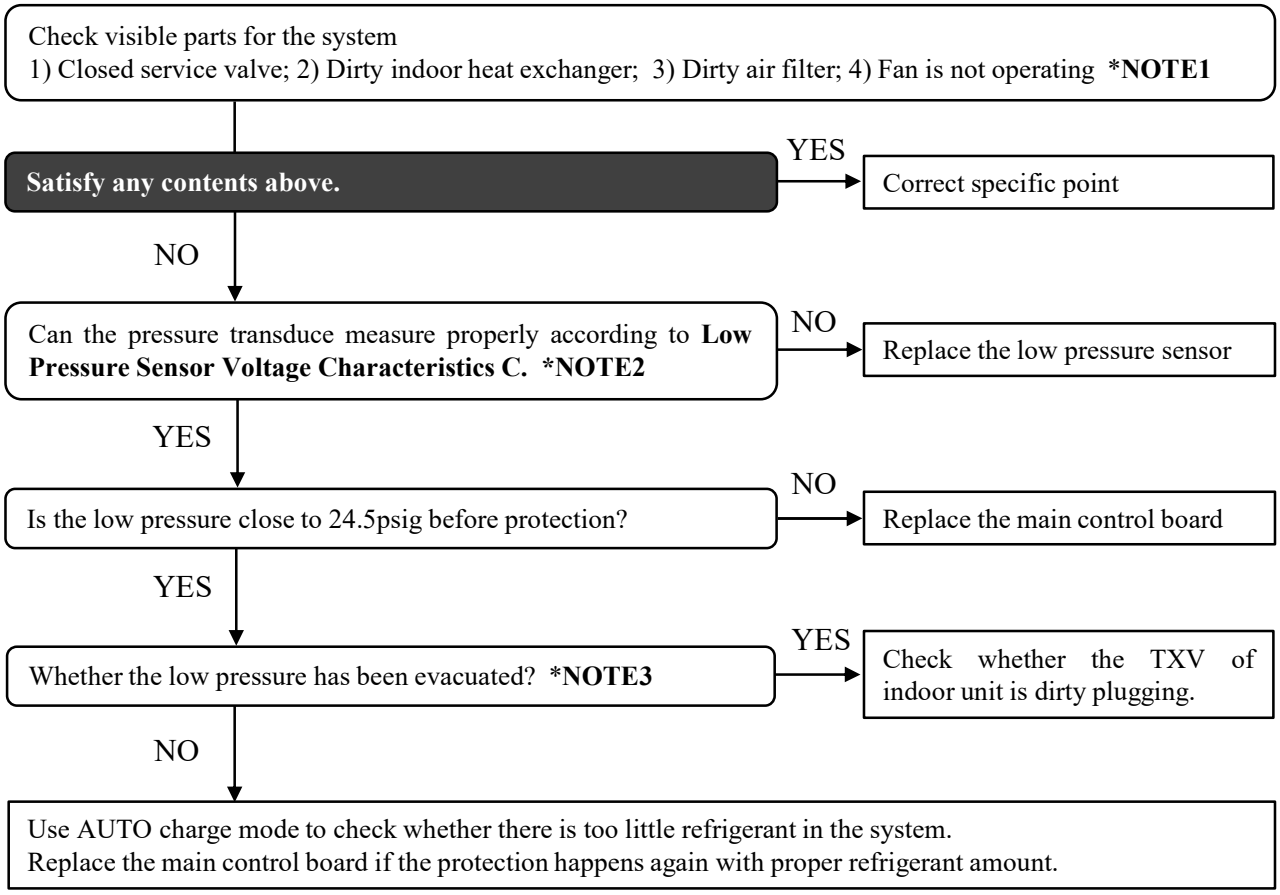
1.Error definition:

P2: The detected low pressure in cooling mode is less than 24.5psig.

E2: System locks up when P2 has occurred six times within 3 hours.

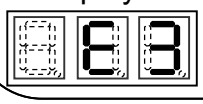
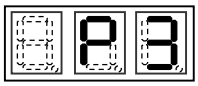
2.Possible causes:

- Service valves are closed
- Dirty air filter or indoor heat exchanger
- Outside temperature is lower than 40°F
- Too little refrigerant in the system
- Damaged indoor R454B TXV
- Damaged low pressure sensor
- Damaged main control board



NOTES:

1. It's normal control if cooling oil return operation is enforced to execute even though the Y signal=OFF (Indoor fan stops because there is No G/G2 signal). Or connect R and G (G2) together to judge if the fan works. Yes-> Replace the indoor PCB; No-> Replace the indoor motor.
2. Connect a pressure gauge to gauge port, compare the difference between the gauged pressure and the transduced one by low pressure sensor (spot check by BS3 button or check the data from ESS Pro App).
3. Abnormal TXV will lead to the refrigerant blockage in the high pressure side.

Display  or 

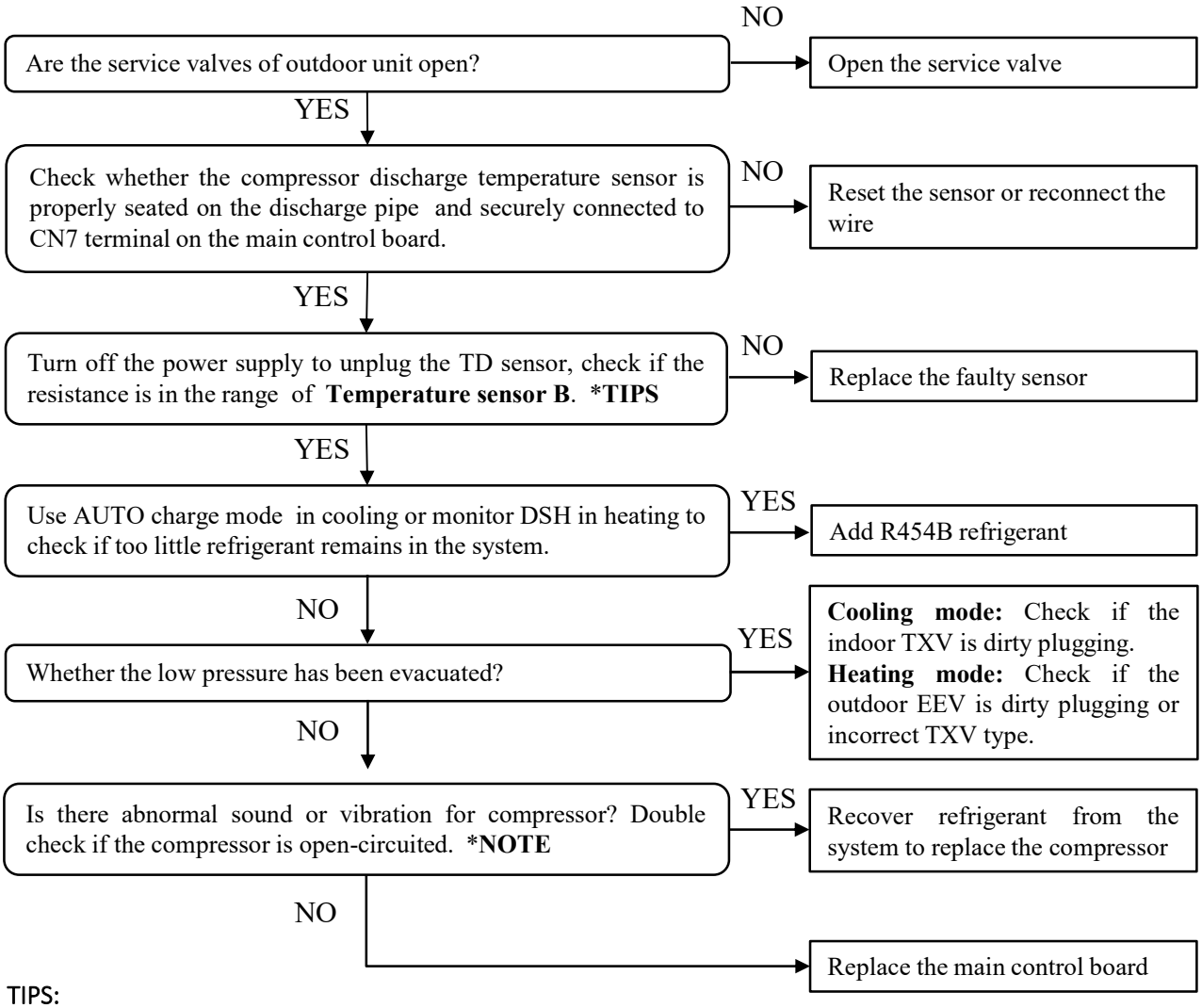
Compressor discharge temperature (TD) protection

1.Error definition:

P3: The detected discharge temperature(TD) is no less than specified value.
Cooling: 248°F Heating: 230°F
E3: System locks up when P3 has occurred six times within 3 hours.

2.Possible causes:

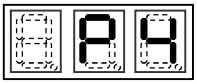
- Too little refrigerant remains in the system
- Dirty plugging of EEV or indoor TXV
- Incorrect TXV type causes high temperature in heating
- Damaged discharge temperature sensor
- Damaged main control board



TIPS:
Technically measure the DC voltage of the temperature sensor also works when outdoor unit powers on.

NOTE: Normal resistance for compressor
3-phase resistance (UV, UW, VW) for compressor is less than 5Ω.
The insulation resistance (any phase to Ground) for compressor is greater than 100KΩ.

Display



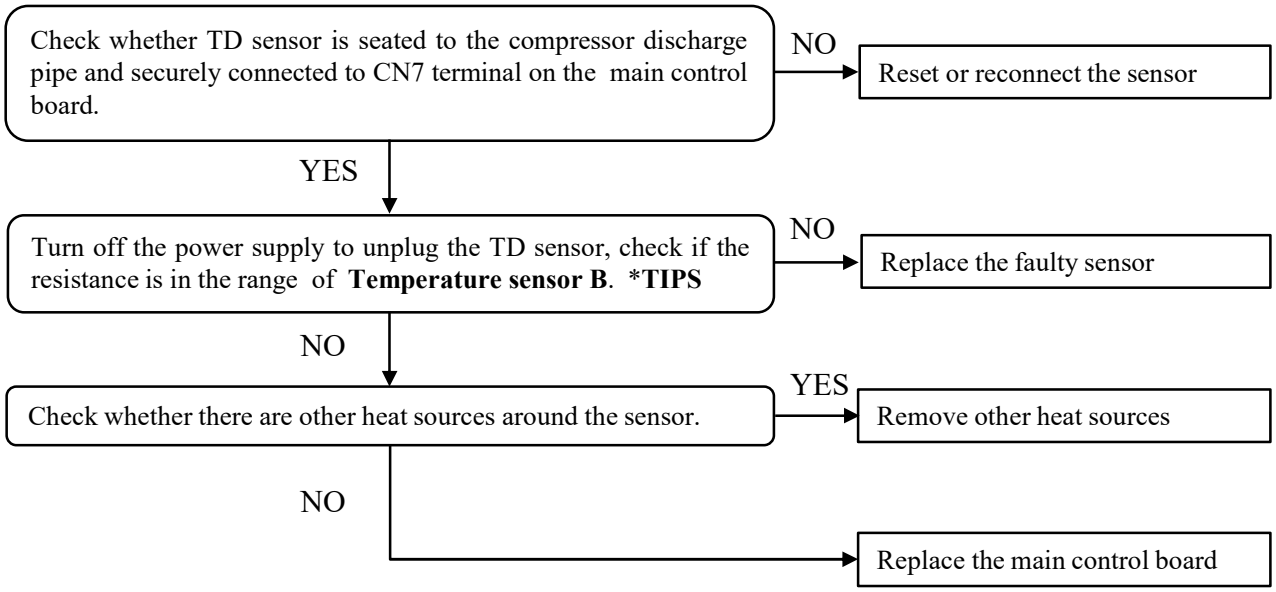
Compressor discharge temperature (TD) sensor is disconnected or damaged

1.Error definition:

Compressor discharge temperature (TD) sensor is disconnected or damaged.
TD<Tc-9°F for 20 minutes, Tc means the condensing temperature.

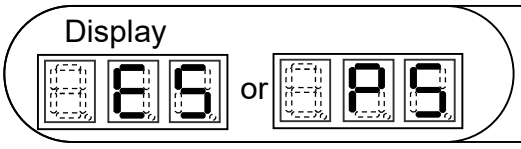
2.Possible causes:

- Discharge temperature (TD) sensor is disconnected or damaged
- Loose connection to CN7 terminal on main control board
- Damaged main control board
- There are other heat sources around the sensor



TIPS:

Technically measure the DC voltage of the temperature sensor also works when outdoor unit powers on.



Inverter module temperature (TF) protection

1.Error definition:

P5: The detected value of module temperature (TF) is no less than specified value.

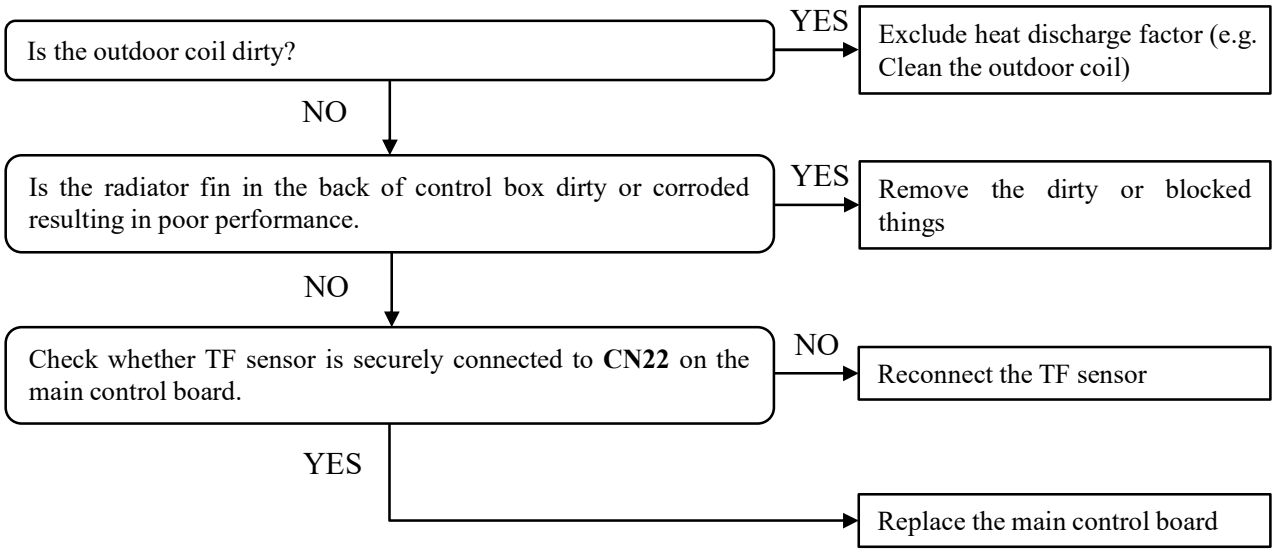
EODA18H-2436B: 199°F in cooling mode/ 185°F in heating mode

EODA18H-4860B: 203°F in cooling mode/ 185°F in heating mode

E5: System locks up when P5 has occurred six times within 3 hours.

2.Possible causes:

- Clogged fin of radiator resulting in poor heat transfer
- Dirty and blocked outdoor heat exchanger
- Damaged TF sensor(PCB2.0 built-in TF sensor)
- Misjudgment caused by resistance drift of TF sensor
- Damaged main control board



TIPS:

Technically measure the DC voltage of the temperature sensor also works when outdoor unit powers on.

Display E6 or P6

Compressor over-current protection

1.Error definition:

P6: The detected compressor current is over the maximum allowed value.

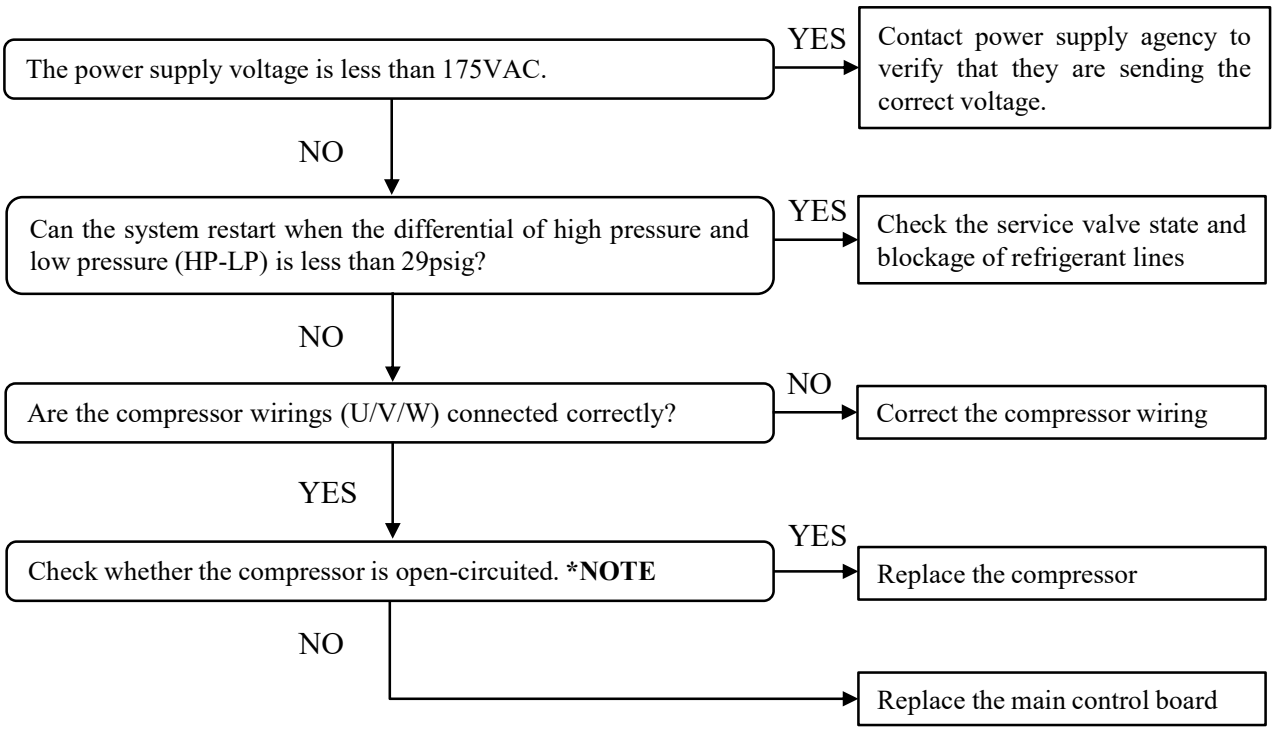
EODA18H-2436B: 14A

EODA18H-4860B: 20A

E6: System locks up when P6 has occurred six times within 3 hours.

2.Possible causes:

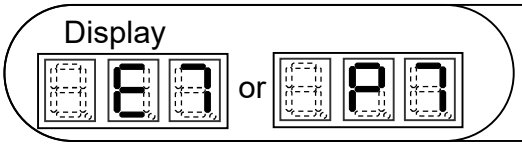
- Abnormal power supply voltage
- Too much refrigerant in the system resulting in liquid slugging at compressor
- Damaged main control board
- Indoor unit is suddenly powered off
- Damaged compressor



NOTE: Normal resistance for compressor

3-phase resistance (UV, UW, VW) for compressor is less than 5Ω.

The insulation resistance (any phase to Ground) for compressor is greater than 100KΩ.



Liquid slugging protection

1.Error definition:

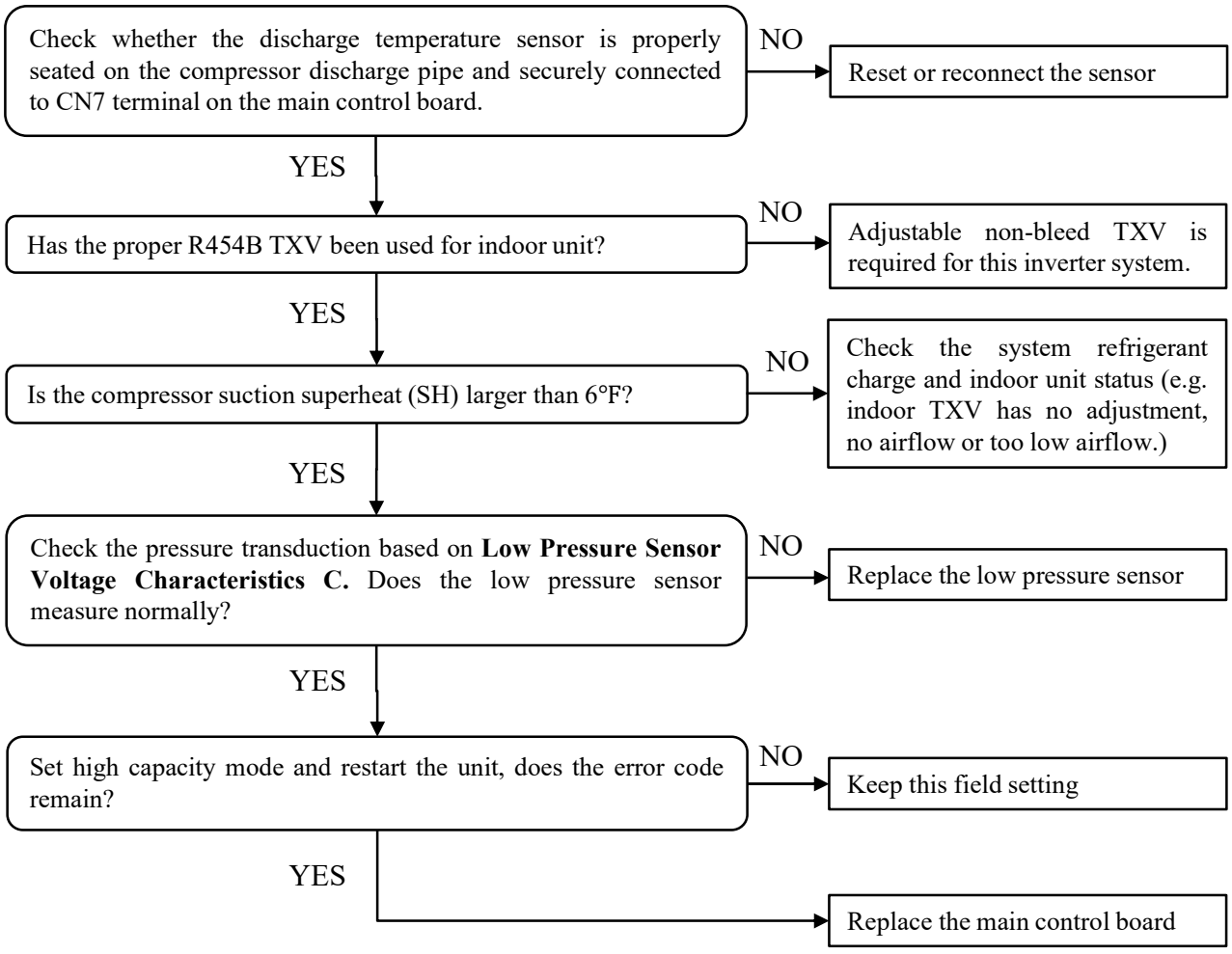
This control is to prevent compressor from damaging because of liquid slugging.
When SH<9.0°F and compressor discharge superheat (DSH=TD-SC-TL-1.8) <14.4°F for 20 minutes, starting to accumulate the liquid slugging time. Report P7 once it lasts for 30 minutes.
E7: System locks up when P7 has occurred three times in 5 hours.

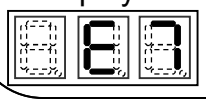
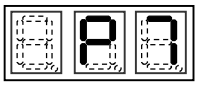
2.Possible causes:

- Damaged or improper TXV for indoor unit in cooling mode
- Abnormal low frequency heating operation
- Overcharged refrigerant
- Damaged discharge temperature (TD) sensor
- Damaged EEV of outdoor unit in heating mode
- Damaged main control board

Cooling mode

Connect a pressure gauge at the gas service valve to calculate suction line superheat.



Display  or 

Liquid slugging protection

Heating mode

Connect a pressure gauge to liquid service valve, compare the gauged pressure with the transduced one by high pressure sensor.

Check whether the heating operation is abnormal, high pressure is high and very low compressor frequency, which is caused by such as incorrect Dual Fuel Settings and filter blockage etc.

YES → Correct abnormal state

NO ↓

Check whether the discharge temperature sensor is properly seated on the compressor discharge pipe and securely connected to CN7 terminal on the main control board.

NO → Reset or reconnect the sensor

YES ↓

Does the EEV cable securely connected to CN13 terminal.

NO → Reconnect the cable

YES ↓

Check the pressure transduction based on **High Pressure Sensor Voltage Characteristics D**. Is the value of high pressure sensor detected close to the gauged one?

NO → Replace the high pressure sensor

YES ↓

Hold and press BS4 button for 5 seconds, press BS2 button in one minute. SEG 1 displays a flashing 8 to **pump down** the refrigerant from outdoor unit to indoor unit. The low pressure(LP) cannot be pumped down resulting in too low SH.

YES → Replace the EEV coil to repeat pump down. Change the EEV body if it fails again.

NO ↓

Check the compressor discharge superheat (DSH) ***NOTE** to judge if there is too much refrigerant in the system.

YES → Recover refrigerant

NO ↓

The error code remains even though setting high capacity mode.

NO → Keep this field setting

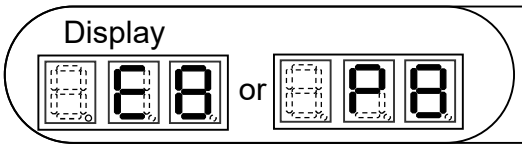
YES ↓

Replace the main control board

NOTE:

Heating DSH should be between 25 ° F and 60 ° F with proper refrigerant charge in normal control.

Overcharged: DSH is smaller than 18 ° F when the EEV opening < 72pls.
Undercharged: DSH is bigger than 60 ° F when the EEV opening ≥460pls



Low compressor voltage protection

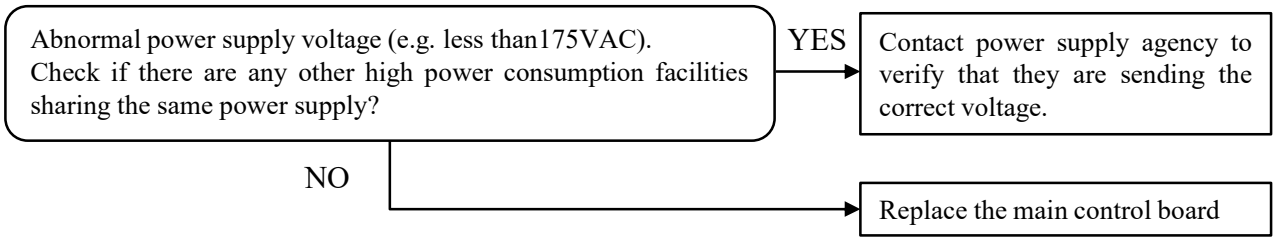
1.Error definition:

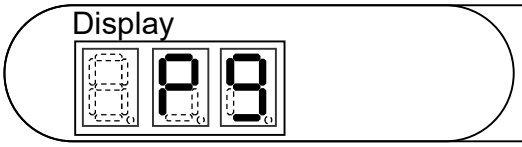
P8: The detected compressor voltage by main chip is less than 310VDC.

E8: System locks up when P8 has occurred three times in 60 minutes.

2.Possible causes:

- Abnormal power supply voltage
- Damaged main control board





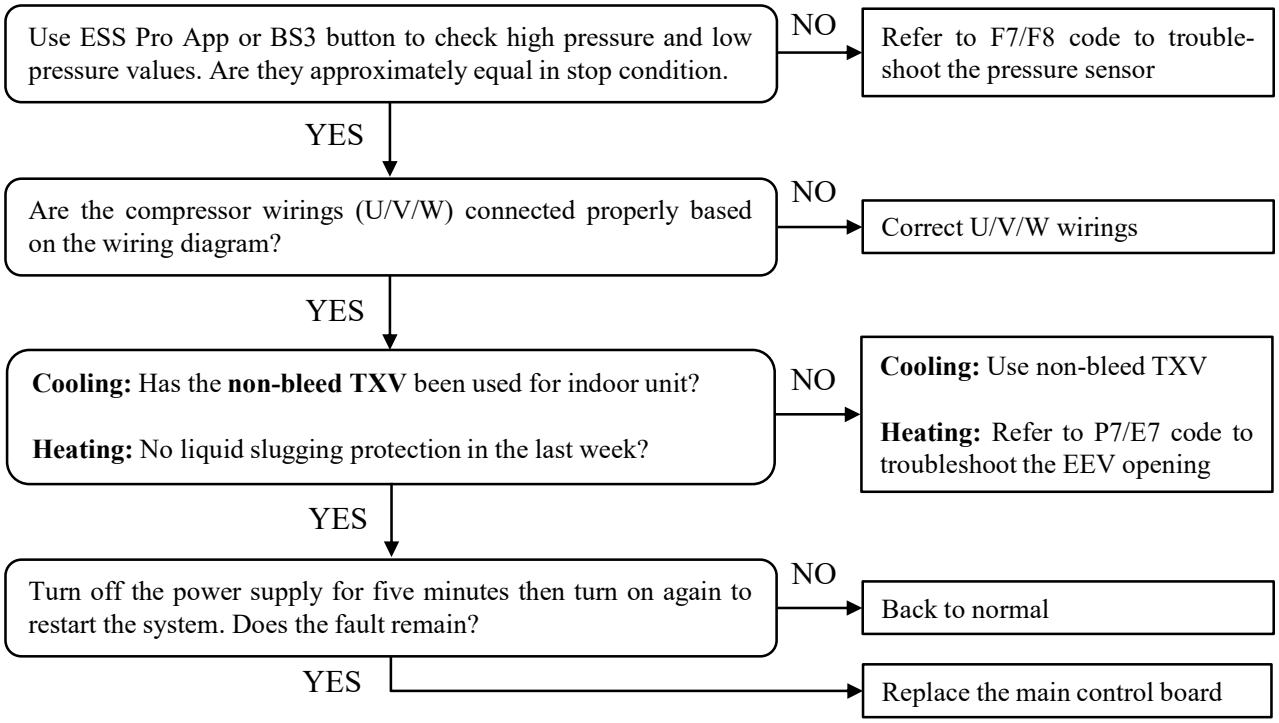
Incorrect compressor line sequence

1.Error definition:

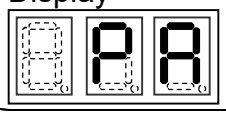
The detected compressor line sequence is incorrect for it's difficult to build pressure difference.

2.Possible causes:

- Damaged pressure sensor
- Incorrect U/V/W connections between main control board and compressor terminals
- Damaged EEV or indoor TXV
- Damaged main control board



Display



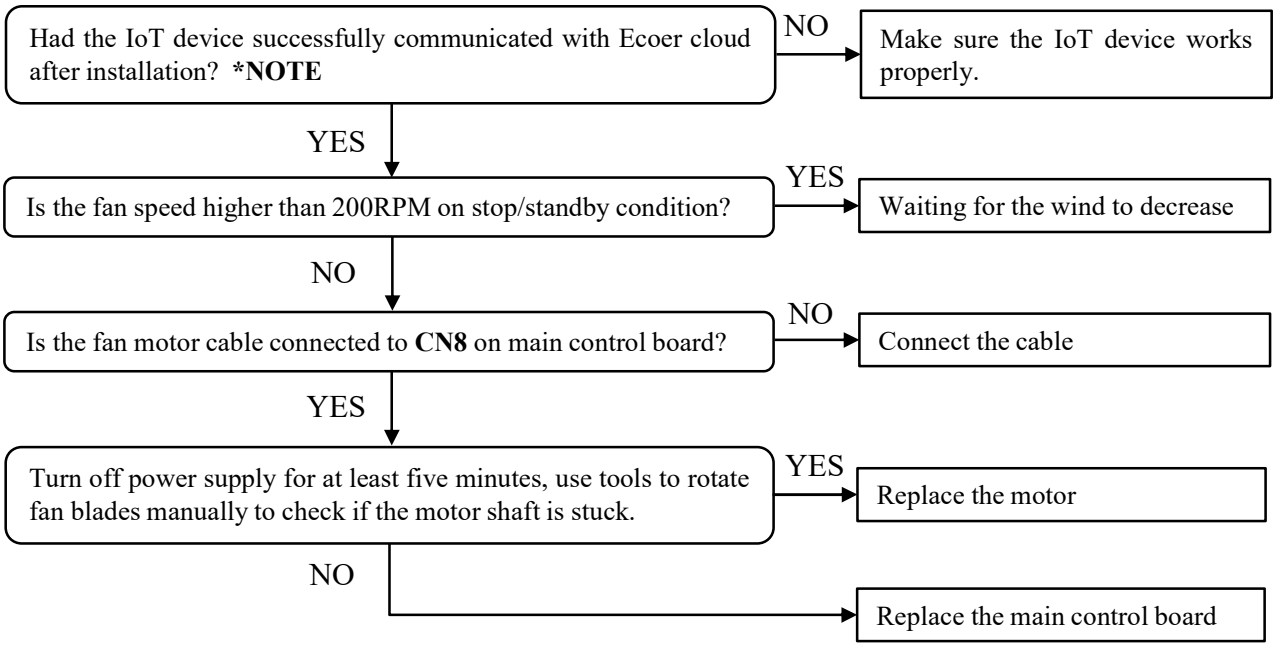
DC fan motor over-load protection

1.Error definition:

- The fan rotation speed is less than 240RPM if it has the running signal.
- The rotation speed difference between the detected value and target one is over 200RPM for 3 minutes.

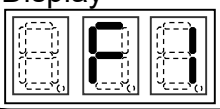
2.Possible causes:

- Damaged main control board
- Malfunction of fan motor
- The unit is undergoing hurricane
- Disconnected wiring between fan motor and main control board



NOTE: The normal working state of IoT device should be blue LED (No.1) is blinking with other LEDs are off.

Display



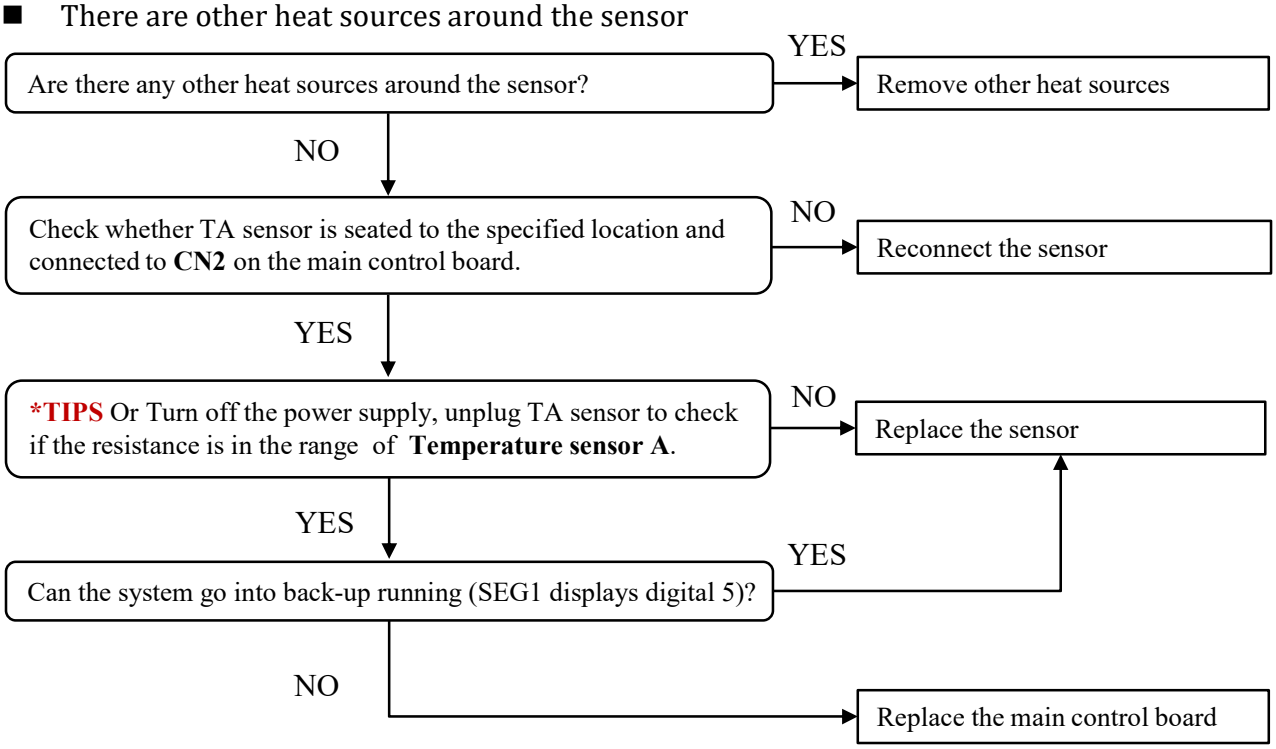
Ambient temperature (TA) sensor fault

1.Error definition:

The outside temperature (TA) sensor is short circuit or open circuit.

2.Possible causes:

- Damaged main control board
- Loose connection at port on main control board
- Damaged temperature sensor
- There are other heat sources around the sensor



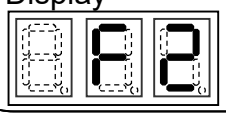
TIPS: Measure the DC voltage of the temperature sensor when outdoor unit powers on.

How to take out the protection cover for TA sensor?

STEP1. Press the button

STEP2. Push down the protection cover

STEP3. Take out the protection cover

Display 

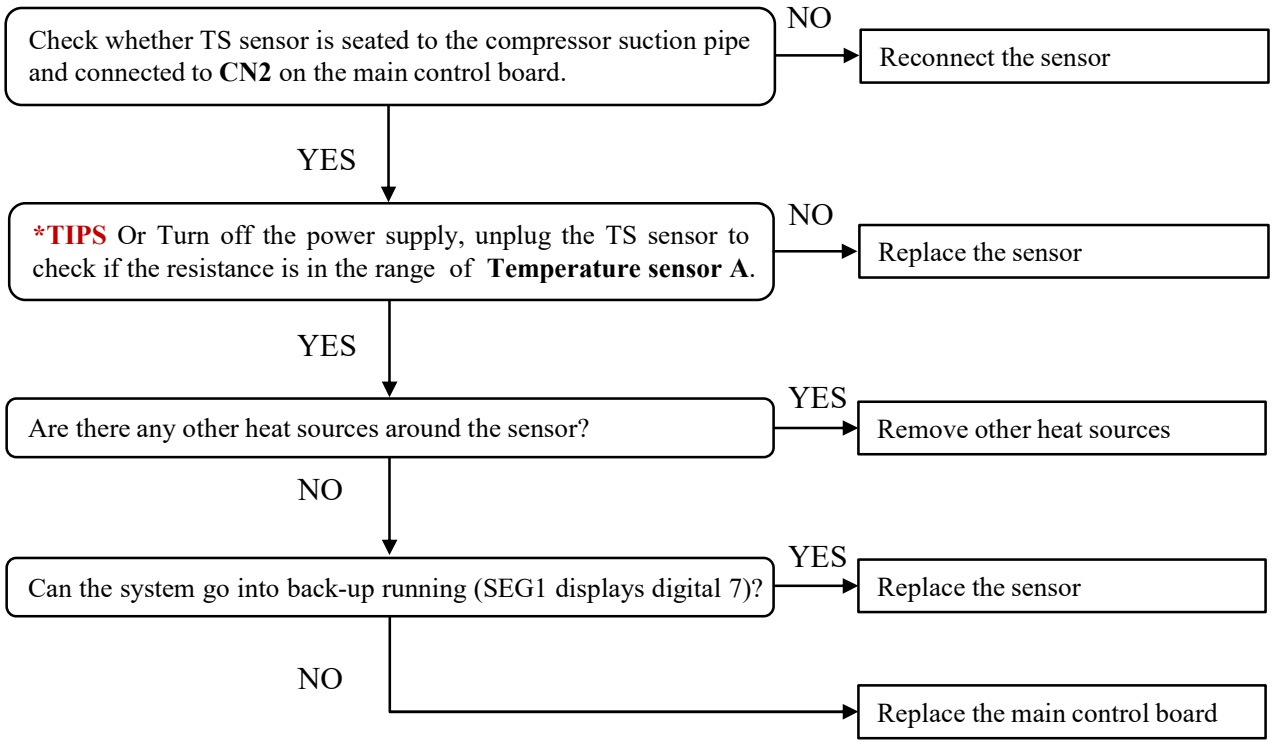
Compressor suction temperature (TS) sensor fault

1.Error definition:

The suction temperature (TS) sensor is short circuit or open circuit.

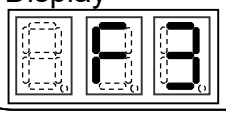
2.Possible causes:

- Damaged main control board
- Loose connection at port on main control board
- Damaged temperature sensor (TS)
- There are other heat sources around the sensor



TIPS: Measure the DC voltage of the temperature sensor when outdoor unit powers on.

Display



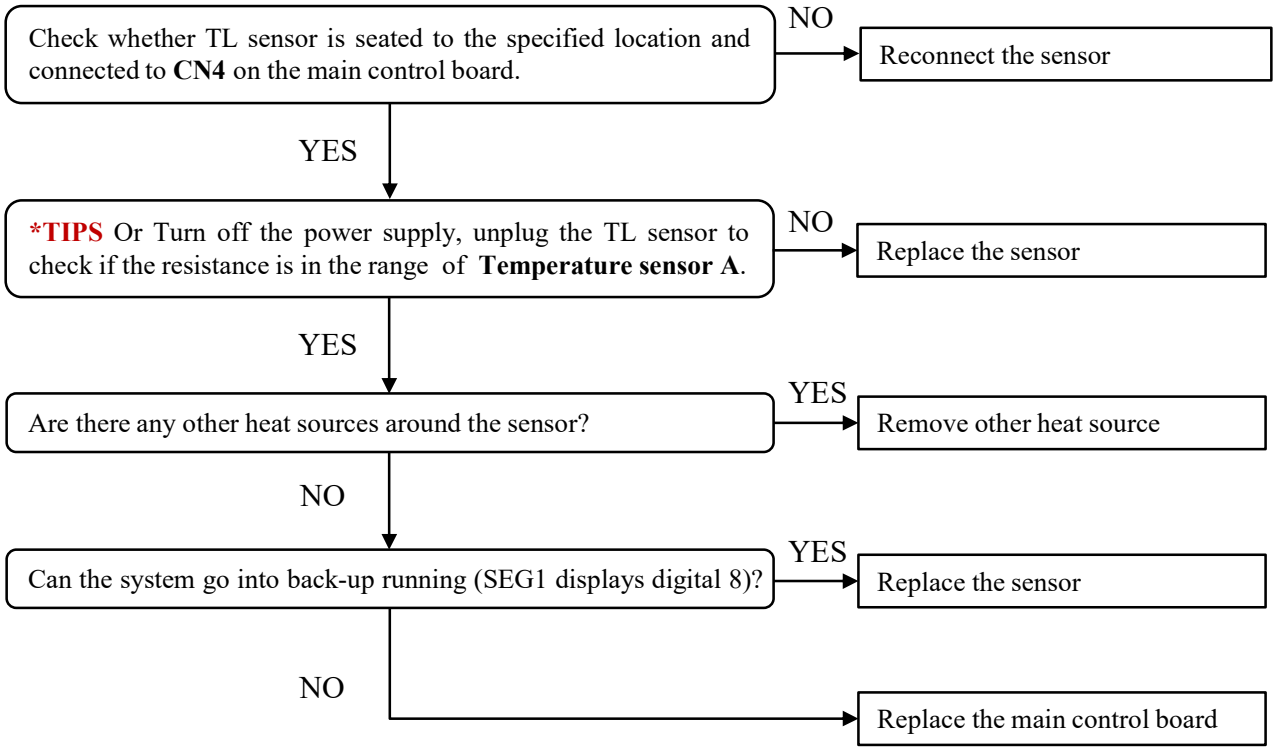
Liquid line temperature (TL) sensor fault

1.Error definition:

The liquid temperature (TL) sensor is short circuit or open circuit.

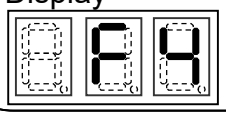
2.Possible causes:

- Damaged main control board
- Loose connection at port on main control board
- Damaged temperature sensor
- There are other heat sources around the sensor



TIPS: Measure the DC voltage of the temperature sensor when outdoor unit powers on.

Display



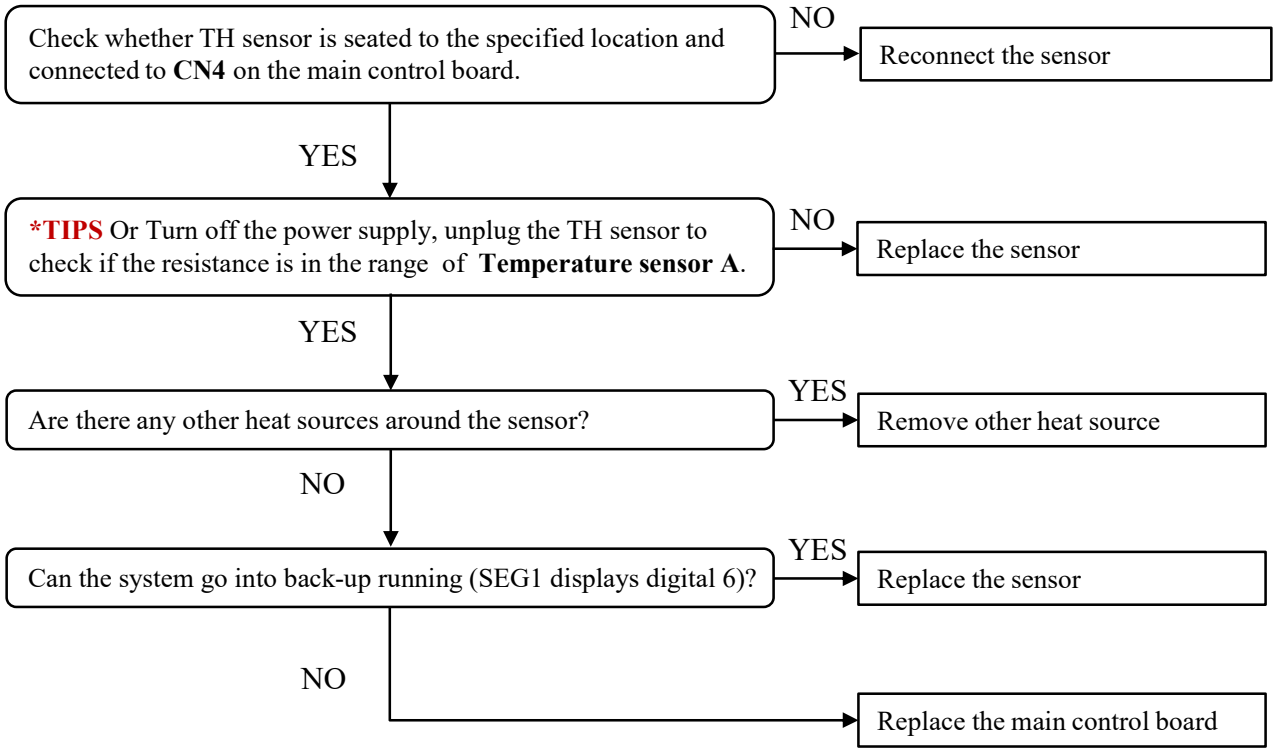
Defrost temperature (TH) sensor fault

1.Error definition:

The defrost temperature (TH) sensor is short circuit or open circuit.

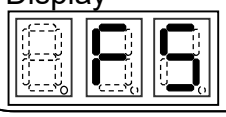
2.Possible causes:

- Damaged main control board
- Loose connection at port on main control board
- Damaged temperature sensor
- There are other heat sources around the sensor



TIPS: Measure the DC voltage of the temperature sensor when outdoor unit powers on.

Display



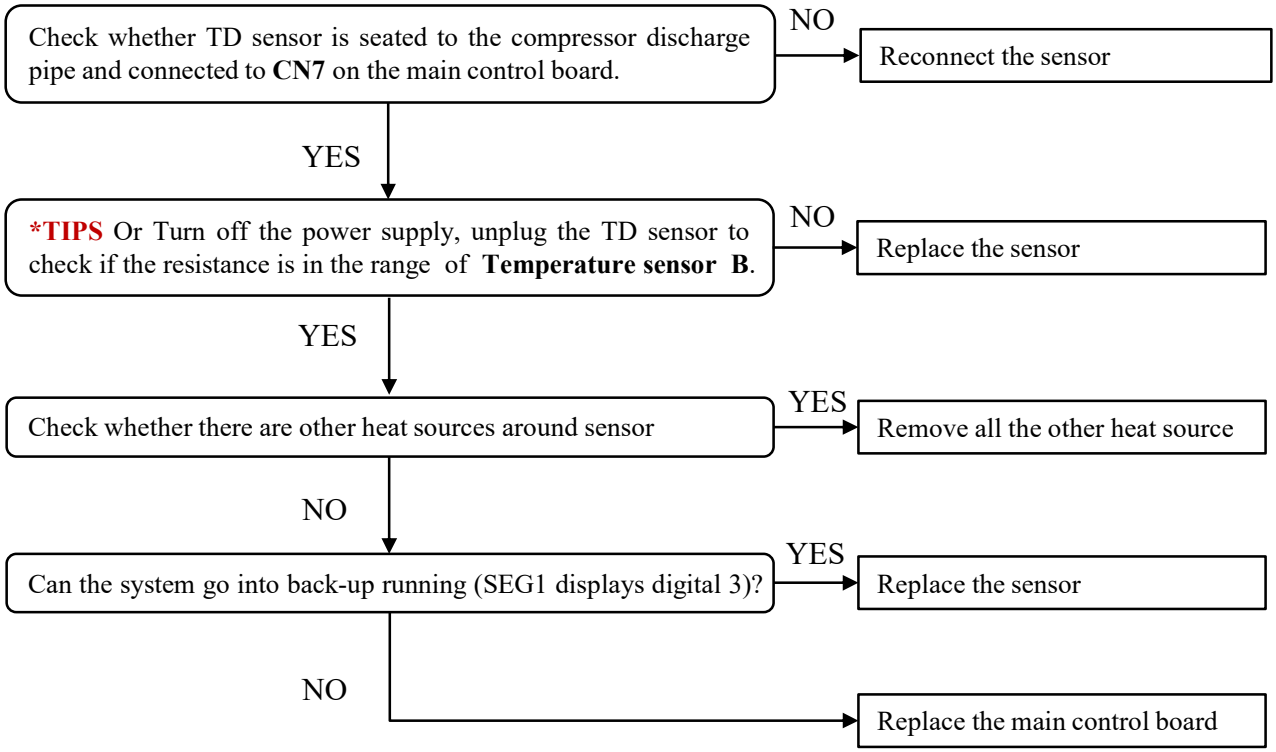
Compressor discharge temperature (TD) sensor fault

1.Error definition:

The discharge temperature (TD) sensor is short circuit or open circuit.

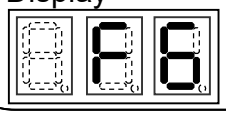
2.Possible causes:

- Damaged main control board
- Loose connection at port on main control board
- Temperature sensor failure
- There are other heat sources around the sensor



TIPS: Measure the DC voltage of the temperature sensor when outdoor unit powers on.

Display



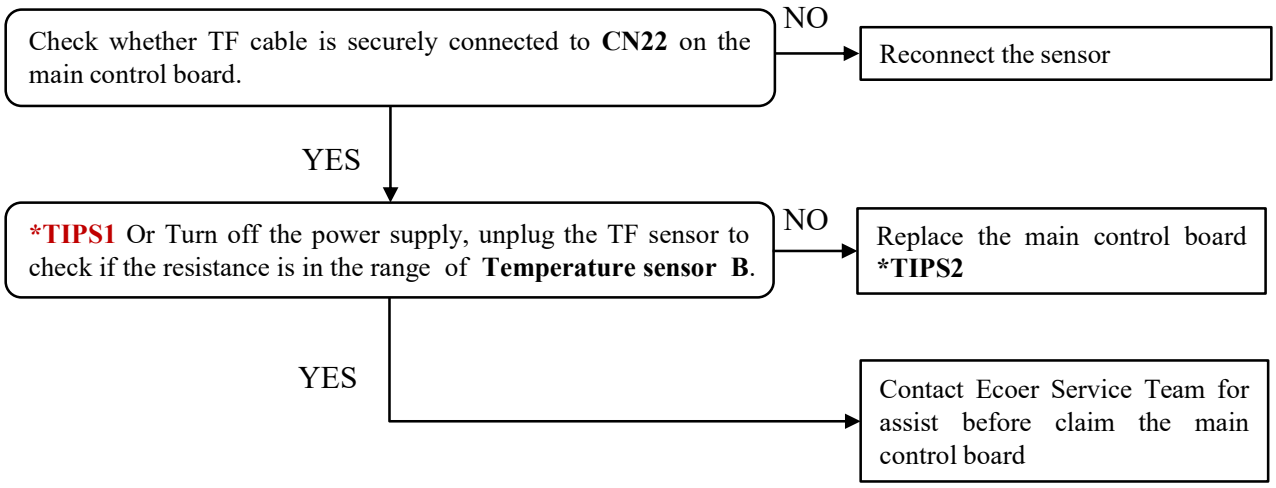
Inverter module temperature (TF) sensor fault

1.Error definition:

The module temperature(TF) sensor is short circuit or open circuit.

2.Possible causes:

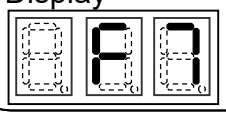
- Damaged main control board
- Loose connection at port on main control board
- Temperature sensor failure(PCB2.0 built-in TF sensor)
- There are other heat sources around the sensor



TIPS:

1. Measure the DC voltage of the temperature sensor when outdoor unit powers on.
2. TF senor has been laid inside the assembly control box with silicon gel contacting the radiator. It's required to replace the main control board in this case.

Display

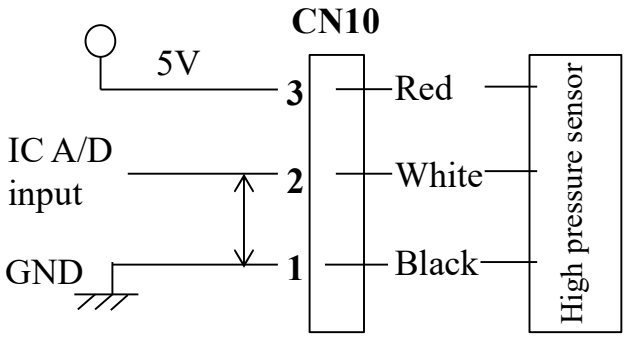


High pressure (HP) sensor fault

1.Error definition and method to check:

The high pressure sensor is open or shorted.

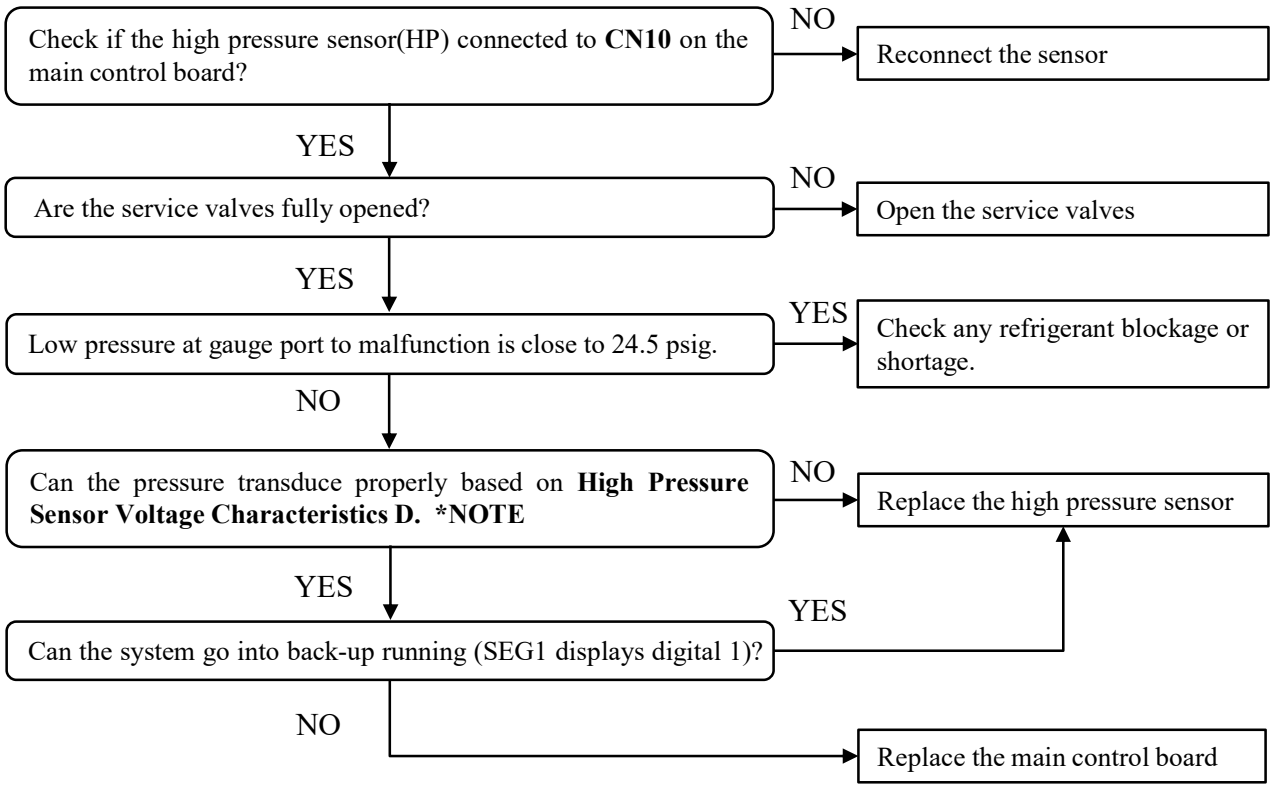
The voltage between CN10 pin(1) and (2) is not in the range 0.59~4.76VDC.



Measure DC voltage within these pins

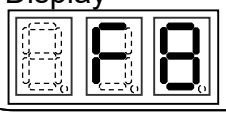
2.Possible causes:

- Damaged main control board
- Loose connection at port on main control board
- Damaged high pressure sensor
- Too little refrigerant remains in the system



NOTE: Connect a pressure gauge to liquid service valve in cooling mode, gas service valve in heating mode. Compare the value difference between gauged pressure and the transduced one by high pressure sensor (spot check by BS3 button or check the data from ESS Pro App).

Display

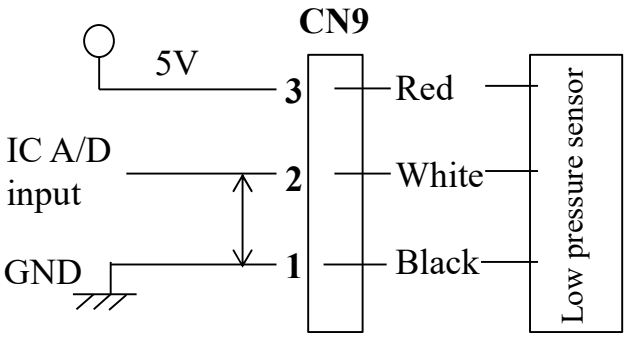


Low pressure (LP) sensor fault

1.Error definition and method to check:

The low pressure sensor is open or shorted.

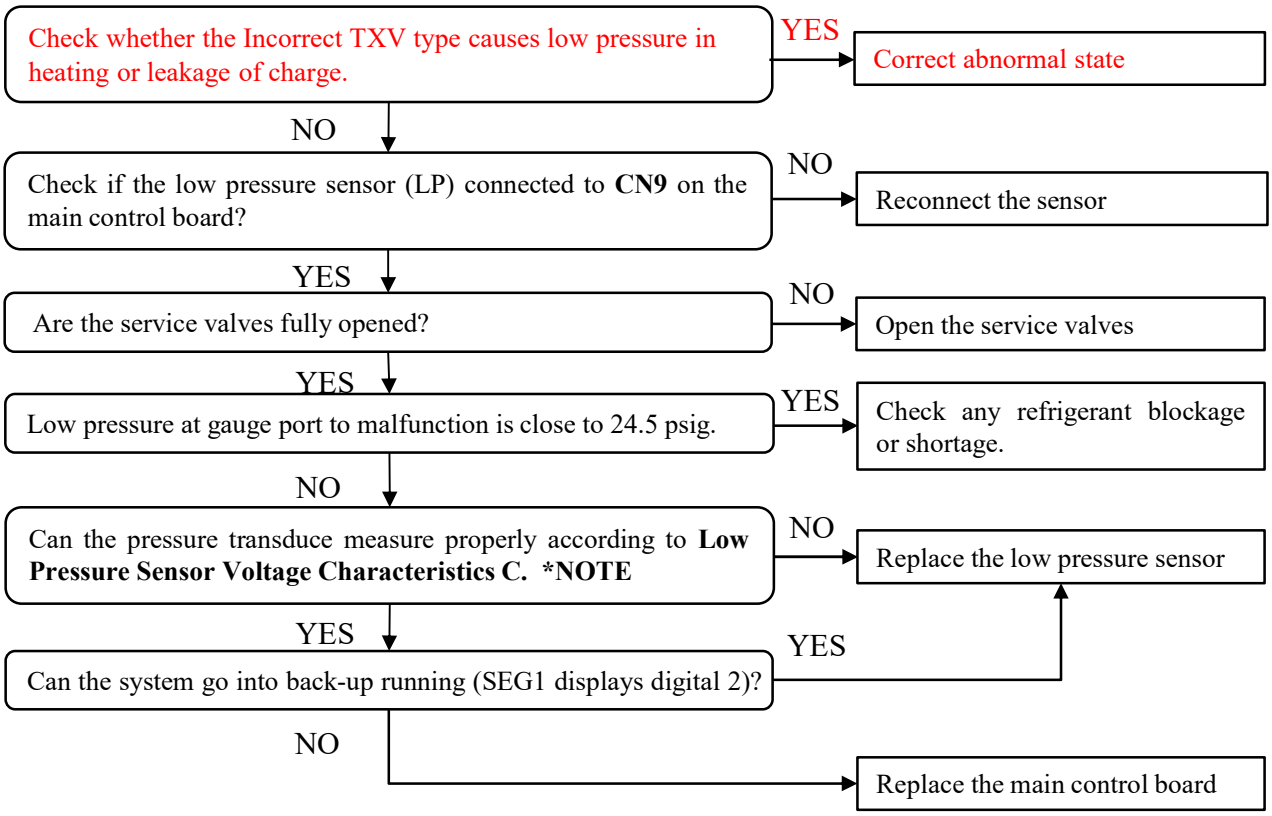
The voltage between CN9 pin(1) and (2) is not in the range 0.70~4.50VDC.



Measure DC voltage within these pins

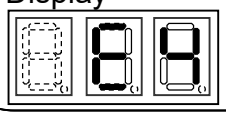
2.Possible causes:

- Damaged main control board
- Loose connection at port on main control board
- Incorrect TXV type causes high temperature in heating
- Damaged low pressure sensor
- Too little refrigerant remains in the system



NOTE: Connect a pressure gauge to gauge port, compare the difference between the gauged pressure and the transduced one by low pressure sensor (spot check by BS3 button or check the data from ESS Pro App).

Display



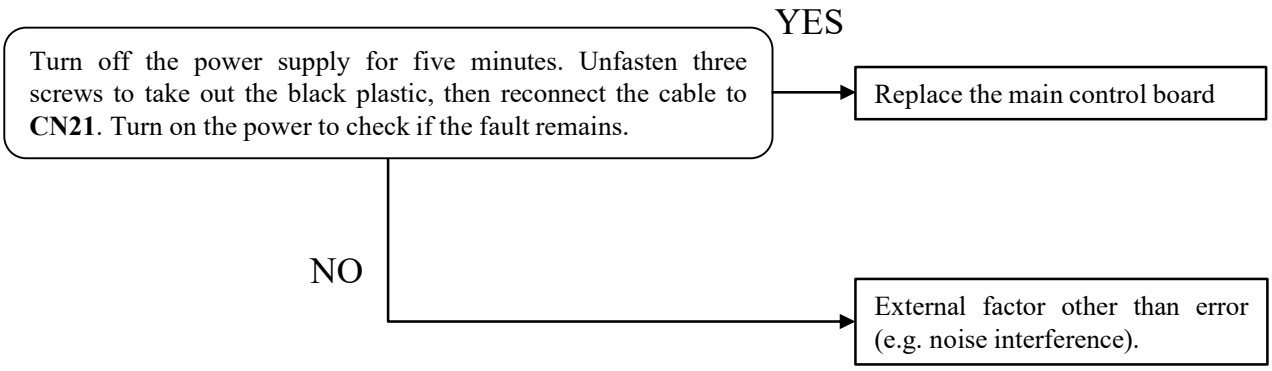
Communication fault between main chip and INV drive chip

1.Error definition and method to check:

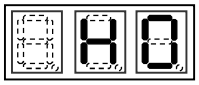
Communication fault between the main control chip and inverter chip.

2.Possible causes:

- Loose connection at CN21 terminal
- Damaged main control board



Display



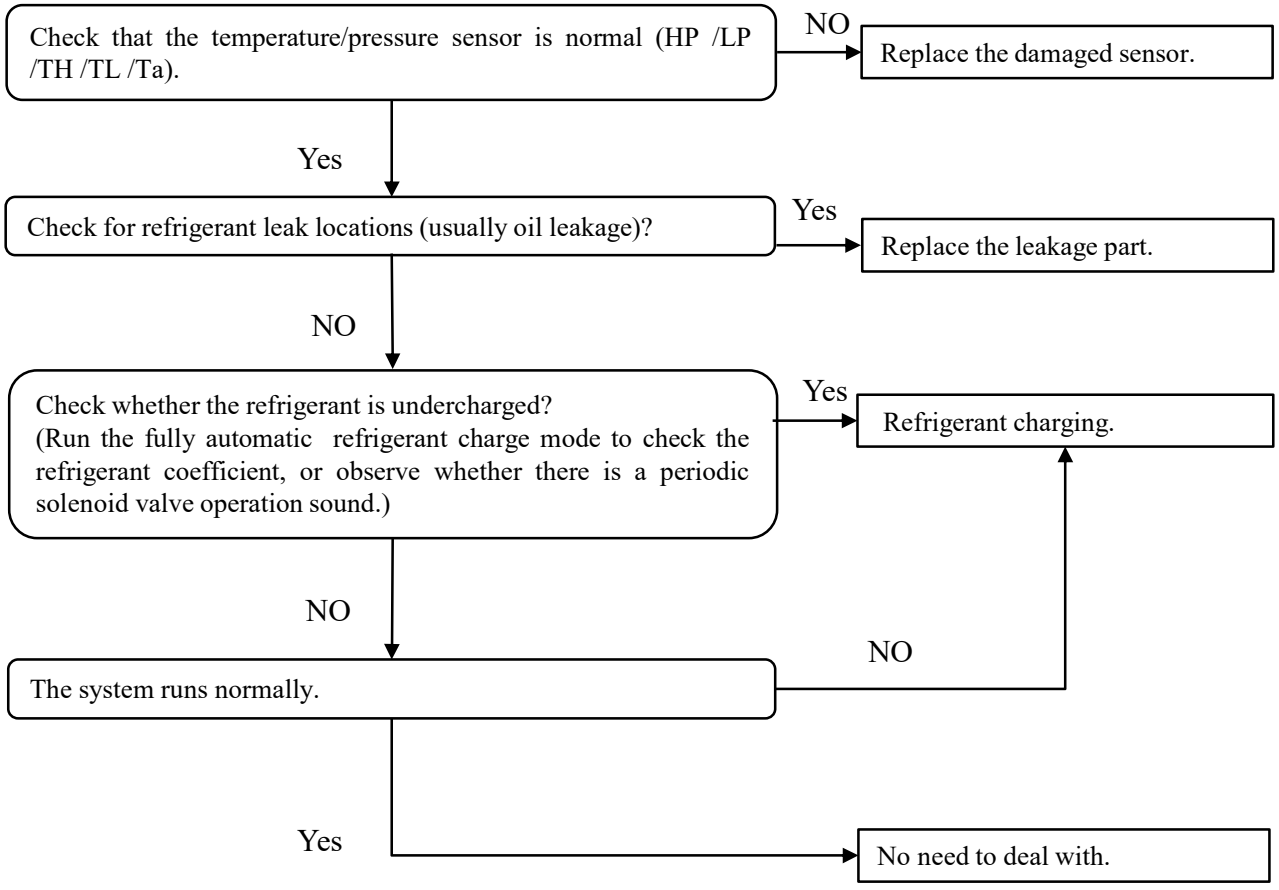
Heavy undercharge limit operation

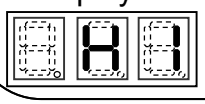
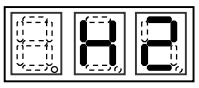
1.Error definition:

Heavy undercharge when turn to operation.

2.Possible causes:

- Refrigerant leakage
- Refrigerant undercharge
- HP/LP Pressure failure
- Temperature sensor(TH/TL/Ta) failure
- Occasional sensor anomaly



Display  or 

Ambient temperature limit operation

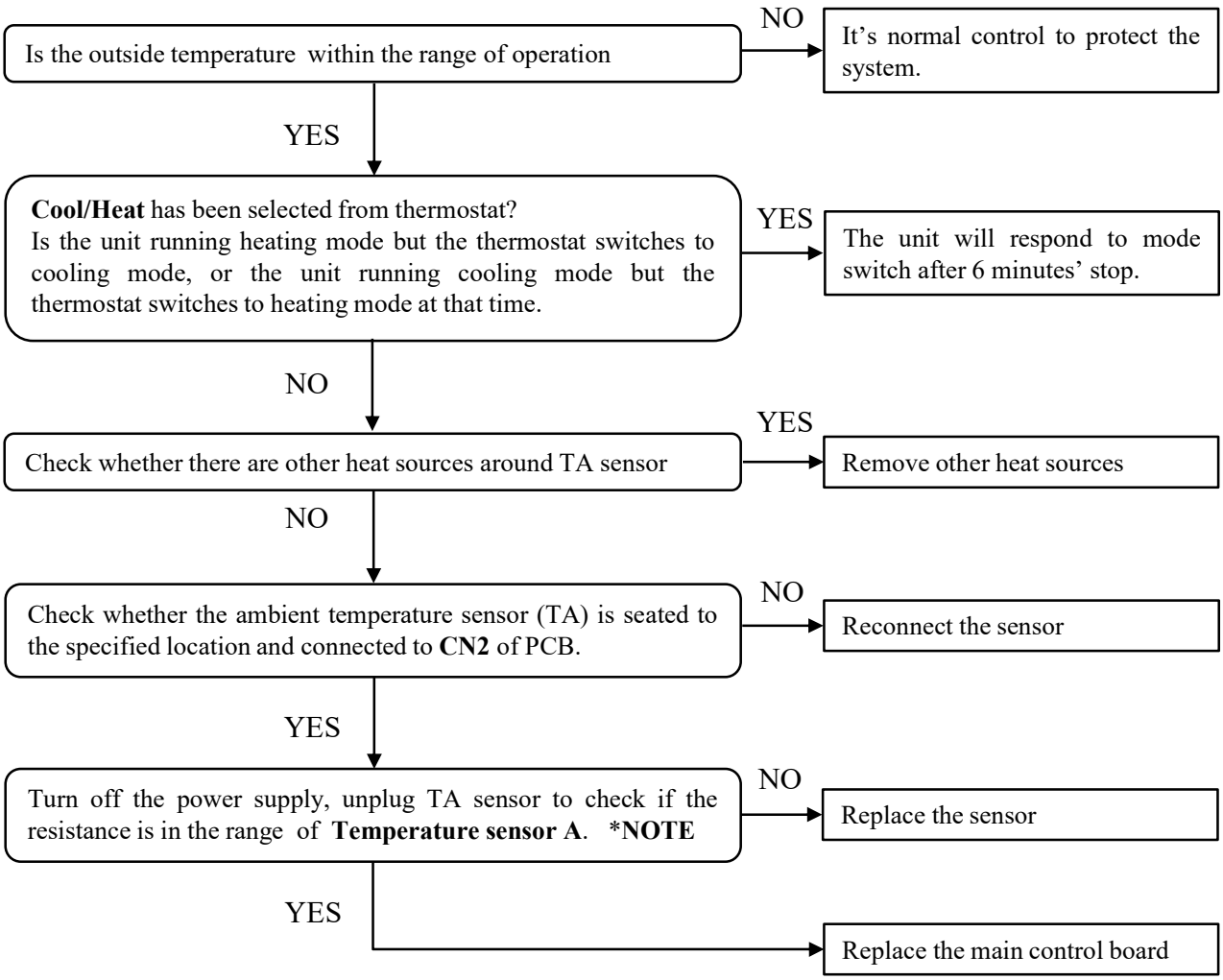
1.Error definition and method to check:

H1: The detected ambient temperature is absolutely prohibited for cooling.
TA<20°F or ≥140°F

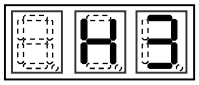
H2: The detected ambient temperature is absolutely prohibited for heating.
TA ≥ 86°F or TA< forced heating stop temperature set by n01

2.Possible causes:

- The ambient temperature exceeds the set range of operation.
- The system is running previous mode
- Damaged ambient temperature sensor (TA)
- Damaged main control board.



Display



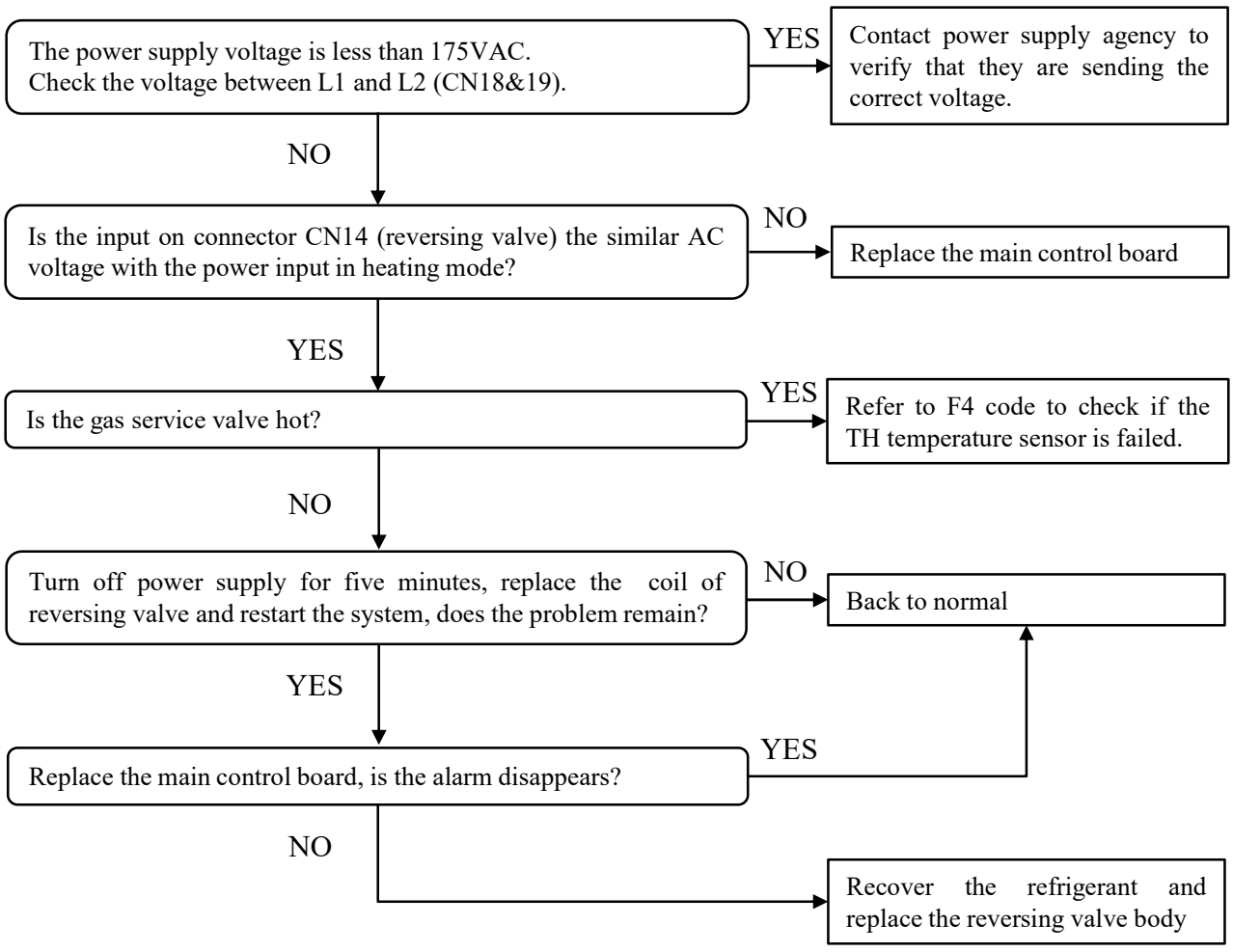
Abnormal switch alarm for reversing valve

1.Error definition:

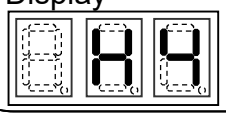
4-way (reversing) valve switches incompletely after defrost operation or from cooling mode.
Report H3 alarm if TH ≥ TL+10.8°F and TH ≥ TA+5.4°F.

2.Possible causes:

- Damaged reversing valve(coil or body)
- Damaged main control board
- Abnormal voltage of power supply
- Temperature sensor(TH) failure
- Reversed location between TH and TL



Display



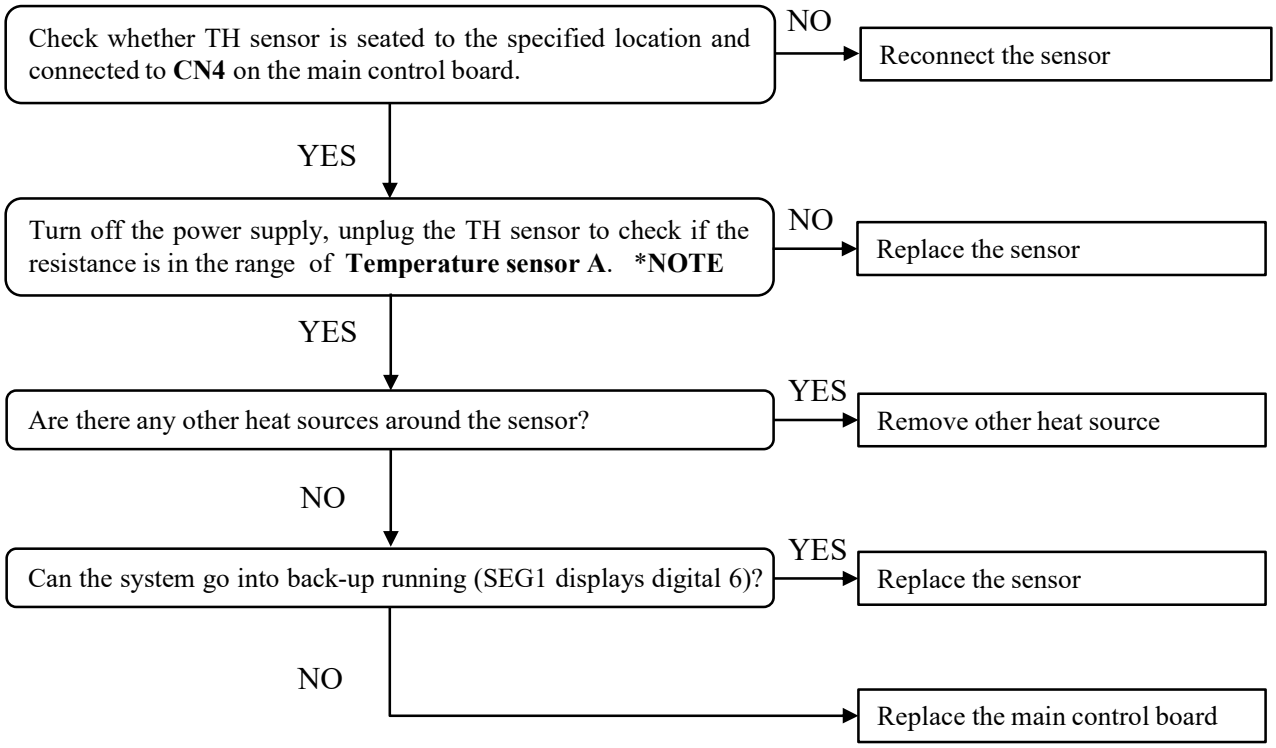
Defrost temperature (TH) sensor is disconnected or damaged

1.Error definition:

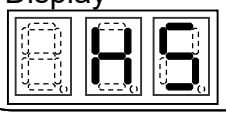
The defrost temperature (TH) sensor is short circuit or open circuit.

2.Possible causes:

- Damaged main control board
- The defrost temperature sensor is wrongly seated
- Temperature sensor failure
- There are other heat sources around the sensor



NOTE: Measure the DC voltage of the temperature sensor also works when outdoor unit powers on.

Display 

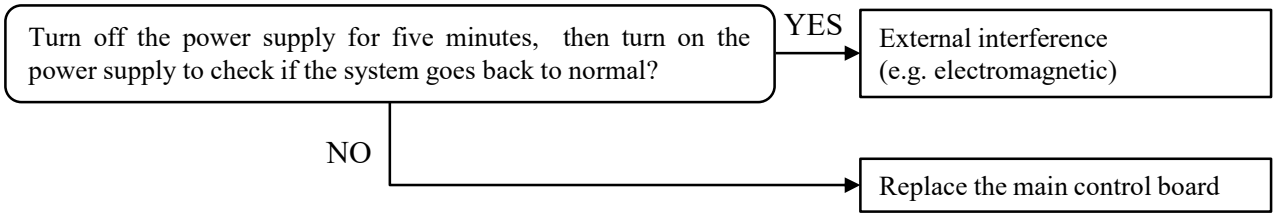
EEPROM fault

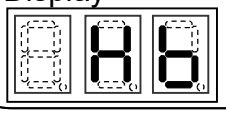
1.Error definition:

Data cannot be correctly received from the EEPROM to main chip.
EEPROM, a type of memory component, remembers contents even though power off.

2.Possible causes:

- Damaged main control board



Display 

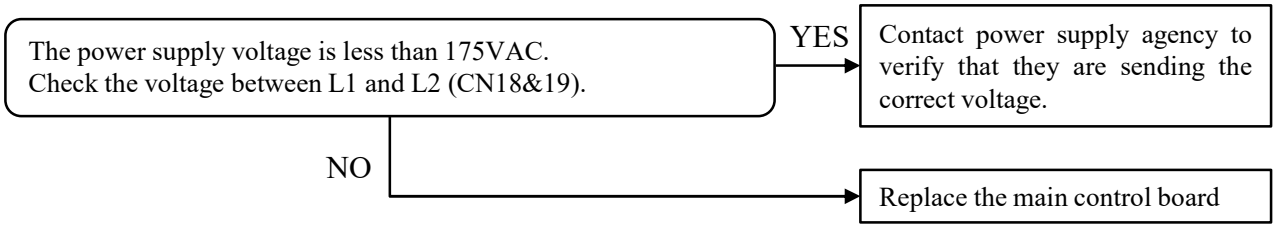
Low voltage alarm

1.Error definition:

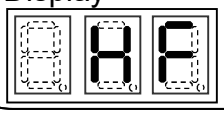
Power supply voltage is less than 175VAC.

2.Possible causes:

- Abnormal power supply voltage
- Damaged main control board



Display



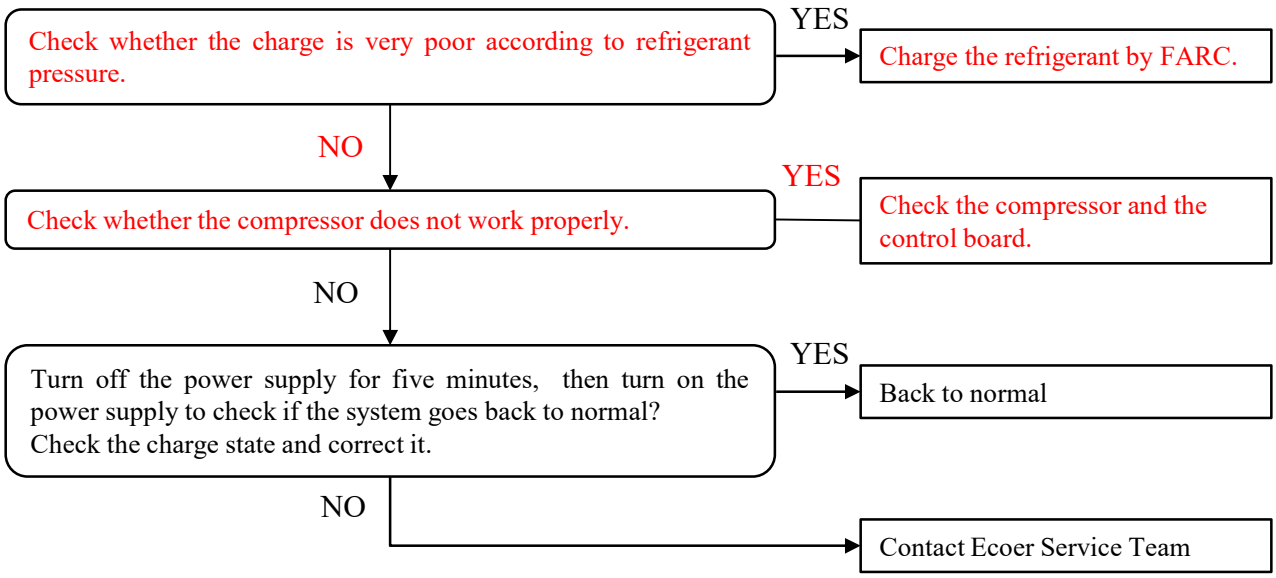
Abnormal function control

1.Error definition:

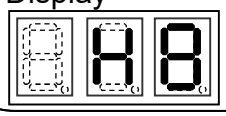
Cannot exit special control (start-up, oil return or defrost)

2.Possible causes:

- Very poor charge
- The compressor does not work properly
- Abnormal signal input from thermostat



Display



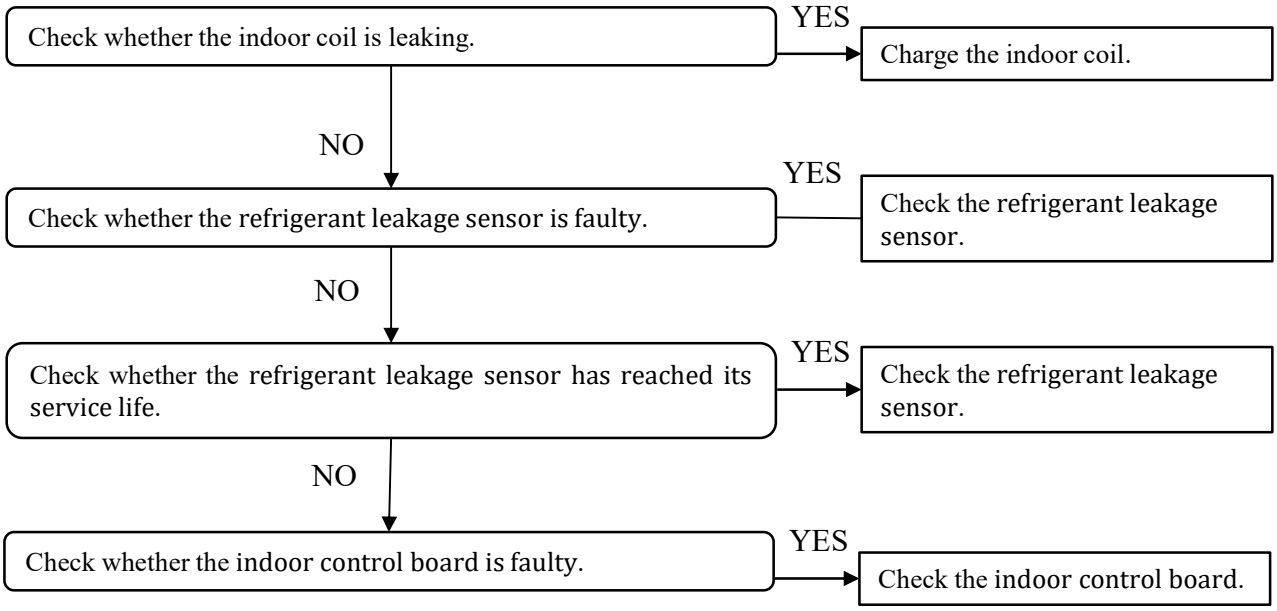
Refrigerant leakage alarm

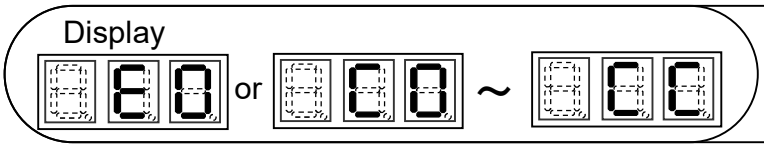
1.Error definition:

Indoor refrigerant leakage alarm

2.Possible causes:

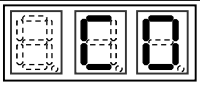
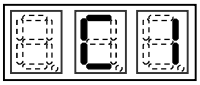
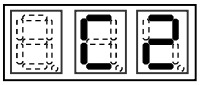
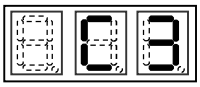
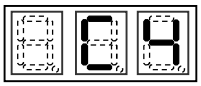
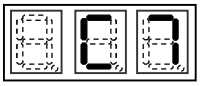
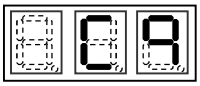
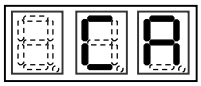
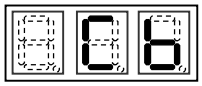
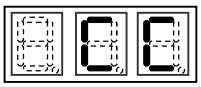
- The indoor coil is leaking
- The refrigerant leakage sensor is faulty
- The refrigerant leakage sensor has reached its service life
- The indoor control board is faulty





Compressor INV module protection

1.Error definition:

Code	LED Display	Definition
C0		Critical over-voltage fault
C1		DC bus over-voltage protection
C2		DC bus under-voltage protection
C3		Over-current protection
C4		Zero speed fault
C7		Compressor speed inconsistent fault
C9		Compressor speed difference between given transient variation and actual operation
CA		AC over-voltage protection
CB		AC under-voltage protection
CC		PFC error

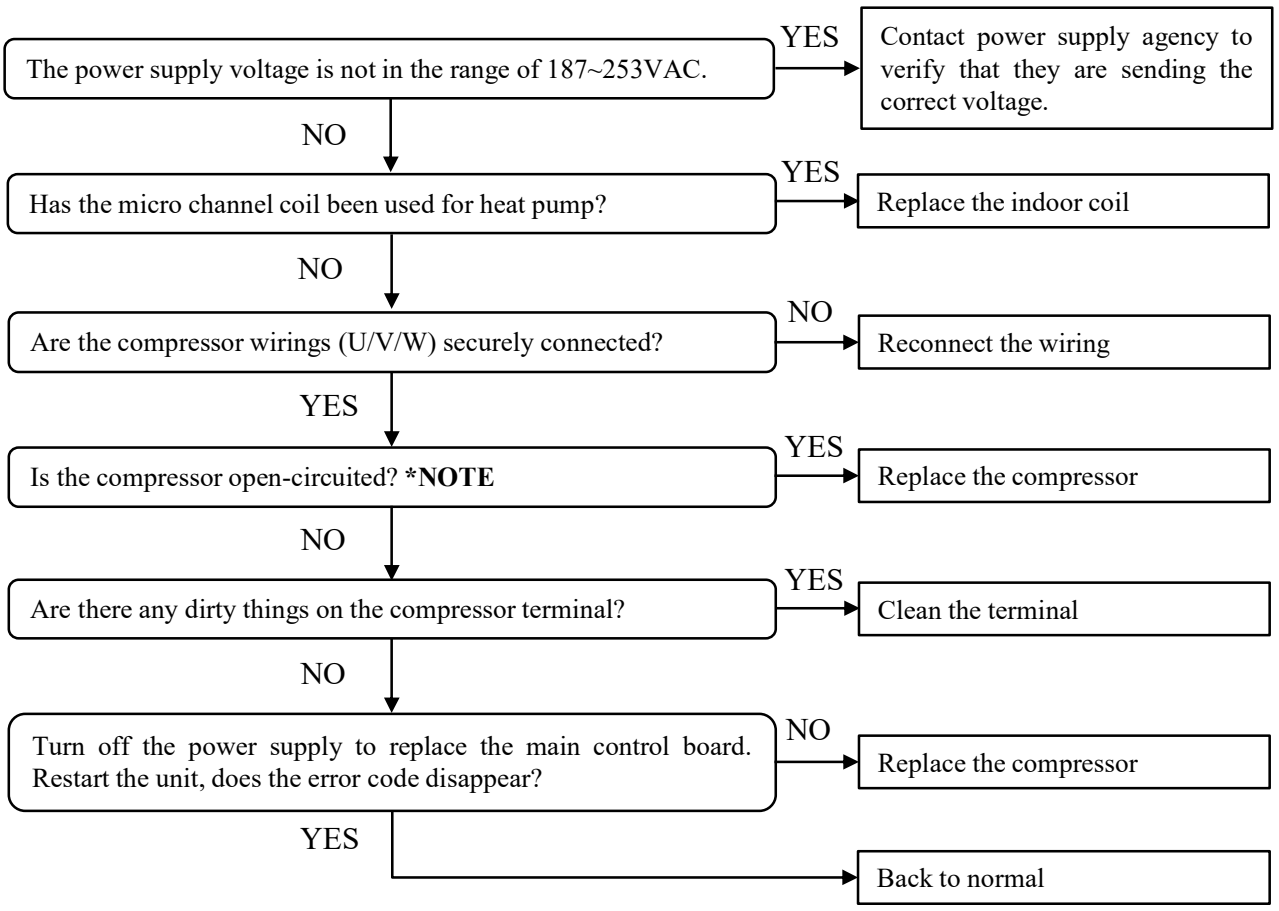
E0: System locks up when C0~CA has occurred three times in 60 minutes.

2.Possible causes:

- Abnormal power supply voltage
- Power supply disconnected (C2/C7/C9 or C2/C3/C7 report at the same time)
- Dirty compressor terminal or damaged compressor
- Damaged main control board
- Micro channel coil has been used for heat pump
- Compressor terminal or wire is loose.

Display E0 or C0 ~ CC

Compressor INV module protection



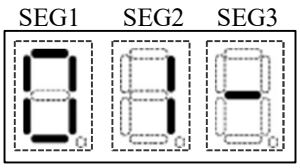
NOTE: Normal resistance for compressor

3-phase resistance (UV, UW, VW) for compressor is less than 5Ω.
The insulation resistance (any phase to Ground) for compressor is greater than 100KΩ.

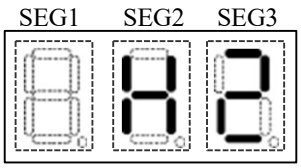
8.4 Outdoor Unit Spot check

System states can be showed on the 7 segments display (LED) of outdoor unit. Press the **BS3** button to obtain the code number and corresponding information at one-second intervals.

Example: Code number



Detailed information



No.	Number content	Example	Description
Default	Refer to default display instructions	902	9: Command/Troubleshooting 0: Running under high pressure limit 2: Cooling mode
01-	Outdoor unit type and capacity	H3	H: Heat pump C: AC only 3: 3Ton
02-	Liquid line sub-cooling	10	10℉
03-	Compressor suction superheat	18	18℉
04-	Compressor speed	56	56RPS
05-	Electronic expansion valve opening	360	360pls
06-	Step of fan	8	The 8th step
07-	Low pressure (LP sensor)	145	145psig
08-	High pressure (HP sensor)	350	350psig
09-	Outdoor ambient temp. (TA)	95	95℉
10-	Compressor suction temp. (TS)	70	70℉
11-	Compressor discharge temp. (TD)	170	170℉
12-	Defrost sensor temp. (TH)	80	80℉
13-	Liquid line temp. (TL)	70	70℉
14-	Inverter module temp. (TF)	150	150℉
15-	Target evaporating temp. (Tes)	43	43℉
16-	Current evaporating temp. (Te)	45	45℉
17-	Target condensing temp. (Tcs)	104	104℉
18-	Current condensing temp. (Tc)	112	112℉
19-	Compressor DC current	10.1	10.1A
20-	Undercharged refrigerant signal	1	0: None 1: Level 1 2: Level 2
21-	Main software version	610	Ver 610
22-	Inverter software version	38	Ver 38
23-	Current fault	E1	Display up to 5 * codes
24-	The last fault	F1	--: none
25-	Fault before the last fault	F2	--: none
26-	Product series	4	TDi Pro 2 series

Remarks: When multi-error codes exist at the same time, each code will be displayed one by one with an interval of one (1) second.

Appendix

.1 Performance Sheet

COOLING-2TON

TC: Total capacity (MBH) **S/T:** Sensible heat ratio

Indoor Airflow	Outdoor	IWB(°F)	59				63				67				71			
(CFM)	DB(°F)	IDB(°F)	70	75	80	85	70	75	80	85	70	75	80	85	70	75	80	85
450	65	TC	16.4	17.1	17.9	18.6	18.9	19.3	19.8	20.2	21.2	21.4	21.5	21.6	-	24.7	24.8	24.9
		S/T	0.57	0.70	0.77	0.83	0.46	0.58	0.68	0.76	0.36	0.47	0.58	0.67	-	0.38	0.48	0.58
		kW	0.72	0.76	0.80	0.84	0.86	0.88	0.91	0.93	0.99	1.00	1.01	1.02	-	1.21	1.21	1.22
	75	TC	16.0	16.7	17.4	18.2	18.7	18.8	18.9	19.0	20.7	20.8	20.9	21.0	-	24.0	24.2	24.3
		S/T	0.59	0.72	0.79	0.83	0.47	0.59	0.70	0.78	0.37	0.49	0.60	0.69	-	0.39	0.50	0.59
		kW	0.83	0.87	0.92	0.97	1.00	1.01	1.02	1.02	1.14	1.15	1.15	1.16	-	1.38	1.39	1.40
	85	TC	15.6	16.3	17.0	17.7	18.2	18.3	18.4	18.5	20.2	20.3	20.4	20.5	-	23.4	23.5	23.6
		S/T	0.60	0.74	0.82	0.83	0.49	0.61	0.71	0.80	0.38	0.50	0.61	0.71	-	0.40	0.51	0.61
		kW	0.95	1.01	1.06	1.11	1.15	1.16	1.17	1.17	1.31	1.32	1.33	1.33	-	1.58	1.59	1.60
	95	TC	15.2	15.8	16.5	17.2	17.4	17.8	18.2	18.7	19.6	19.7	19.8	19.9	-	22.8	22.9	23.0
		S/T	0.62	0.76	0.83	0.83	0.50	0.62	0.73	0.82	0.39	0.51	0.63	0.73	-	0.41	0.52	0.63
		kW	1.12	1.17	1.23	1.30	1.32	1.35	1.39	1.44	1.52	1.53	1.54	1.55	-	1.84	1.85	1.87
	105	TC	13.3	13.8	14.4	15.1	16.3	16.7	17.0	17.4	19.1	19.2	19.3	19.4	-	22.1	22.2	22.4
		S/T	0.64	0.78	0.83	0.83	0.51	0.64	0.75	0.83	0.40	0.53	0.65	0.75	-	0.42	0.54	0.65
		kW	1.11	1.16	1.21	1.28	1.41	1.45	1.48	1.52	1.71	1.72	1.73	1.74	-	2.05	2.06	2.09
	115	TC	12.9	13.4	14.0	14.6	15.8	16.2	16.5	16.9	18.5	18.6	18.7	18.8	-	21.5	21.6	21.7
		S/T	0.66	0.81	0.83	0.83	0.53	0.66	0.78	0.83	0.41	0.54	0.67	0.77	-	0.43	0.55	0.66
		kW	1.23	1.29	1.35	1.42	1.56	1.61	1.64	1.69	1.89	1.90	1.91	1.93	-	2.28	2.29	2.31
	125	TC	11.3	11.8	12.3	12.8	12.9	13.2	13.5	13.8	13.9	14.0	14.1	14.2	-	14.7	14.7	14.8
		S/T	0.68	0.83	0.83	0.83	0.54	0.68	0.80	0.83	0.42	0.56	0.69	0.79	-	0.44	0.57	0.68
		kW	1.21	1.27	1.33	1.40	1.41	1.45	1.48	1.52	1.54	1.55	1.56	1.57	-	1.64	1.64	1.65
550	65	TC	17.4	18.2	19.0	19.8	20.1	20.5	21.0	21.5	22.6	22.7	22.8	22.9	-	26.2	26.3	26.5
		S/T	0.61	0.75	0.82	0.88	0.49	0.61	0.72	0.81	0.38	0.50	0.62	0.71	-	0.40	0.51	0.62
		kW	0.76	0.80	0.85	0.89	0.91	0.93	0.96	0.99	1.06	1.06	1.07	1.07	-	1.28	1.29	1.30
	75	TC	17.0	17.7	18.5	19.3	19.6	20.0	20.5	20.9	22.0	22.1	22.2	22.4	-	25.5	25.7	25.8
		S/T	0.62	0.77	0.84	0.88	0.50	0.63	0.74	0.83	0.39	0.52	0.63	0.73	-	0.41	0.53	0.63
		kW	0.87	0.92	0.97	1.02	1.04	1.07	1.10	1.13	1.21	1.21	1.22	1.23	-	1.46	1.47	1.48
	85	TC	16.5	17.3	18.0	18.8	19.0	19.5	19.9	20.4	21.4	21.5	21.6	21.8	-	24.8	25.0	25.1
		S/T	0.64	0.79	0.87	0.88	0.52	0.65	0.76	0.85	0.40	0.53	0.65	0.75	-	0.42	0.54	0.65
		kW	1.00	1.06	1.11	1.17	1.19	1.23	1.26	1.30	1.38	1.39	1.40	1.41	-	1.67	1.69	1.69
	95	TC	16.1	16.8	17.5	18.3	18.5	18.9	19.4	19.8	20.8	20.9	21.1	21.2	-	24.2	24.3	24.4
		S/T	0.66	0.81	0.88	0.88	0.53	0.66	0.78	0.87	0.41	0.55	0.67	0.77	-	0.43	0.56	0.67
		kW	1.17	1.24	1.30	1.37	1.39	1.43	1.47	1.51	1.61	1.62	1.64	1.65	-	1.95	1.96	1.97
	105	TC	14.1	14.7	15.3	16.0	17.3	17.7	18.1	18.5	20.2	20.4	20.5	20.6	-	23.5	23.6	23.8
		S/T	0.68	0.83	0.88	0.88	0.55	0.68	0.80	0.88	0.42	0.56	0.69	0.79	-	0.44	0.57	0.69
		kW	1.16	1.22	1.28	1.35	1.48	1.52	1.56	1.61	1.79	1.82	1.83	1.84	-	2.17	2.19	2.21
	115	TC	13.7	14.3	14.9	15.5	16.8	17.2	17.6	18.0	19.7	19.8	19.9	20.0	-	22.8	23.0	23.1
		S/T	0.70	0.86	0.88	0.88	0.56	0.70	0.83	0.88	0.44	0.58	0.71	0.82	-	0.46	0.59	0.71
		kW	1.29	1.36	1.43	1.49	1.65	1.69	1.74	1.79	2.00	2.01	2.03	2.04	-	2.41	2.43	2.45
	125	TC	12.0	12.5	13.0	13.6	13.7	14.0	14.3	14.6	14.8	14.9	14.9	15.0	-	15.6	15.6	15.7
		S/T	0.72	0.88	0.88	0.88	0.58	0.72	0.85	0.88	0.45	0.60	0.73	0.84	-	0.47	0.61	0.73
		kW	1.27	1.33	1.39	1.47	1.48	1.52	1.56	1.59	1.62	1.63	1.63	1.65	-	1.72	1.72	1.74
650	65	TC	18.3	19.1	20.0	20.8	21.1	21.6	22.1	22.6	23.7	23.9	24.0	24.1	-	27.5	27.7	27.8
		S/T	0.64	0.79	0.86	0.92	0.51	0.64	0.76	0.85	0.40	0.53	0.65	0.75	-	0.42	0.54	0.65
		kW	0.80	0.84	0.89	0.93	0.95	0.98	1.01	1.04	1.10	1.12	1.12	1.13	-	1.34	1.35	1.36
	75	TC	17.9	18.6	19.4	20.3	20.6	21.0	21.5	22.0	23.1	23.2	23.4	23.5	-	26.8	27.0	27.1
		S/T	0.65	0.81	0.89	0.92	0.53	0.66	0.78	0.87	0.41	0.54	0.66	0.77	-	0.43	0.55	0.66
		kW	0.92	0.96	1.01	1.07	1.09	1.12	1.15	1.19	1.26	1.27	1.28	1.29	-	1.53	1.55	1.56
	85	TC	17.4	18.2	18.9	19.8	20.0	20.5	20.9	21.4	22.5	22.6	22.8	22.9	-	26.1	26.3	26.4
		S/T	0.67	0.83	0.91	0.92	0.54	0.68	0.80	0.89	0.42	0.56	0.68	0.79	-	0.44	0.57	0.68
		kW	1.05	1.11	1.16	1.23	1.25	1.29	1.32	1.36	1.45	1.45	1.47	1.48	-	1.75	1.77	1.78
	95	TC	16.9	17.7	18.4	19.2	19.5	19.9	20.4	20.8	21.9	22.0	22.1	22.3	-	25.4	25.6	25.7
		S/T	0.69	0.85	0.92	0.92	0.56	0.70	0.82	0.92	0.43	0.57	0.70	0.81	-	0.45	0.59	0.70
		kW	1.22	1.29	1.36	1.43	1.46	1.50	1.54	1.58	1.69	1.70	1.71	1.73	-	2.05	2.07	2.08
	105	TC	14.8	15.5	16.1	16.8	18.2	18.6	19.0	19.4	21.3	21.4	21.5	21.6	-	24.7	24.8	25.0
		S/T	0.71	0.87	0.92	0.92	0.57	0.72	0.84	0.92	0.44	0.59	0.72	0.83	-	0.47	0.60	0.72
		kW	1.21	1.28	1.34	1.41	1.55	1.59	1.63	1.68	1.89	1.90	1.91	1.92	-	2.28	2.29	2.32
	115	TC	14.4	15.0	15.7	16.3	17.7	18.1	18.5	18.9	20.7	20.8	20.9	21.0	-	24.0	24.1	24.3
		S/T	0.73	0.90	0.92	0.92	0.59	0.74	0.87	0.92	0.46	0.61	0.74	0.86	-	0.48	0.62	0.74
		kW	1.35	1.41	1.49	1.56	1.72	1.77	1.82	1.87	2.09	2.11	2.12	2.13	-	2.53	2.54	2.57
	125	TC	12.6	13.1	13.7	14.3	14.4	14.7	15.1	15.4	15.5	15.6	15.7	15.8	-	16.4	16.5	16.5
		S/T	0.75	0.92	0.92	0.92	0.61	0.76	0.89	0.92	0.47	0.63	0.77	0.88	-	0.50	0.64	0.76
		kW	1.32	1.38	1.46	1.53	1.54	1.58	1.63	1.67	1.68	1.70	1.71	1.72	-	1.80	1.81	1.81
750	65	TC	19.1	20.0	20.8	21.7	22.0	22.5	23.0	23.6	24.8	24.9	25.0	25.2	-	28.7	28.9	29.1
		S/T	0.67	0.82	0.90	0.96	0.54	0.67	0.79	0.89	0.42	0.55	0.68	0.78	-	0.44	0.56	0.68
		kW	0.83	0.88	0.92	0.97	0.99	1.02	1.05	1.08	1.15	1.16	1.17	1.18	-	1.40	1.41	1.43
	75	TC	18.7	19.5	20.3	21.2	21.5	22.0	22.4	22.9	24.1	24.3	24.4	24.5	-	28.0	28.2	28.3
		S/T	0.68	0.84	0.93	0.96	0.55	0.69	0.81	0.91	0.43	0.57	0.69	0.80	-	0.45	0.58	0.69
		kW	0.95	1.00	1.06	1.11	1.13	1.17	1.20	1.23	1.31	1.33	1.34	1.34	-	1.60	1.62	1.62
	85	TC	18.2	18.9	19.8	20.6	20.9	21.4	21.9	22.3	23.5	23.6	23.8	23.9	-	27.3	27.4	27.6
		S/T	0.70	0.86	0.95	0.96	0.57	0.71	0.83	0.93	0.44	0.58	0.71	0.82	-	0.46	0.59	0.71
		kW	1.09	1.14	1.21	1.27	1.30	1.34	1.38	1.41	1.51	1.52	1.53	1.54	-	1.84	1.84	1.86
	95	TC	17.7	18.4	19.2	20.1	20.3	20.8	21.3	21.7	22.9	23.0	23.1	23.2	-	25.5	25.6	25.7
		S/T	0.72	0.89	0.96	0.96	0.58	0.73	0.86	0.96	0.45	0.60	0.73	0.85	-	0.47	0.61	0.73
		kW	1.28	1.34	1.41	1.49	1.51	1.56	1.61	1.65	1.76	1.77	1.78	1.79	-	2.03	2.04	2.05
	105	TC	15.5	16.1	16.8	17.6	19.0	19.4	19.8	20.3	22.2	22.3	22.5	22.6	-	25.8	25.9	26.1
		S/T	0.74	0.91	0.96	0.96	0.60	0.75	0.88	0.96	0.46	0.62	0.75	0.87	-	0.49	0.63	0.75
		kW	1.26	1.32	1.39	1.47	1.61	1.65	1.70	1.75	1.96	1.97	1.99	2.00	-	2.38	2.39	2.42
	115	TC	15.0	15.7	16.3	17.1	18.4	18.9	19.3	19.7	21.6	21.7	21.8	22.0	-	25.1	25.2	25.3
		S/T	0.76	0.94	0.96	0.96	0.62	0.77	0.91	0.96	0.48	0.63	0.78	0.90	-	0.50	0.65	0.77
		kW	1.39	1.47	1.54	1.63	1.78	1.84	1.89	1.94	2.18	2.19	2.20	2.23	-	2.64	2.66	2.67
	125	TC	13.1	13.7	14.3	14.9	15.0	15.4	15.7	16.1	16.2	16.3	16.4	16.5	-	17.1	17.2	17.3
		S/T	0.79	0.96	0.96	0.96	0.63	0.79	0.93	0.96	0.49	0.65	0.80	0.92	-	0.52	0.67	0.80
		kW	1.36	1.44	1.51	1.58	1.60	1.65	1.68	1.74	1.75	1.76	1.77	1.79	-	1.87	1.88	1.89

COOLING-2TON

TC: Total capacity (MBH) **S/T:** Sensible heat ratio

2TON SYSTEM-----EODA19H-2436ABA+EAHDEN-24ABA																		
Indoor Airflow	**Outdoor**	**IWB(°F)**	**59**				**63**				**67**				**71**			
(CFM)	**DB(°F)**	**IDB(°F)**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**
850	65	TC	19.9	20.7	21.6	22.6	22.9	23.4	23.9	24.5	25.7	25.9	26.0	26.1	-	29.8	30.0	30.2
		S/T	0.69	0.85	0.94	1.00	0.56	0.70	0.82	0.92	0.43	0.57	0.70	0.81	-	0.45	0.59	0.70
		kW	0.86	0.90	0.95	1.01	1.03	1.06	1.09	1.12	1.19	1.21	1.21	1.22	-	1.46	1.47	1.48
	75	TC	19.4	20.2	21.1	22.0	22.3	22.8	23.3	23.8	25.1	25.2	25.3	25.5	-	29.1	29.2	29.4
		S/T	0.71	0.87	0.96	1.00	0.57	0.72	0.84	0.94	0.44	0.59	0.72	0.83	-	0.47	0.60	0.72
		kW	0.99	1.04	1.09	1.15	1.17	1.21	1.24	1.28	1.37	1.38	1.38	1.40	-	1.67	1.67	1.69
	85	TC	18.9	19.7	20.5	21.4	21.7	22.2	22.7	23.2	24.4	24.5	24.7	24.8	-	28.3	28.5	28.6
		S/T	0.73	0.90	0.99	1.00	0.59	0.74	0.86	0.97	0.46	0.60	0.74	0.85	-	0.48	0.62	0.74
		kW	1.13	1.19	1.25	1.32	1.34	1.38	1.42	1.46	1.56	1.57	1.59	1.60	-	1.90	1.92	1.93
	95	TC	18.3	19.1	20.0	20.8	21.1	21.6	22.1	22.6	23.7	23.9	24.0	24.1	-	26.4	26.6	26.7
		S/T	0.75	0.92	1.00	1.00	0.60	0.76	0.89	1.00	0.47	0.62	0.76	0.88	-	0.49	0.63	0.76
		kW	1.31	1.38	1.47	1.54	1.57	1.62	1.66	1.71	1.82	1.84	1.85	1.86	-	2.10	2.12	2.13
	105	TC	16.1	16.7	17.5	18.2	19.7	20.2	20.6	21.1	23.1	23.2	23.3	23.5	-	26.8	26.9	27.1
		S/T	0.77	0.95	1.00	1.00	0.62	0.78	0.91	1.00	0.48	0.64	0.78	0.90	-	0.51	0.65	0.78
		kW	1.30	1.36	1.44	1.51	1.66	1.72	1.76	1.81	2.04	2.05	2.06	2.08	-	2.47	2.48	2.51
	115	TC	15.6	16.3	17.0	17.7	19.1	19.6	20.0	20.5	22.4	22.5	22.7	22.8	-	26.0	26.2	26.3
		S/T	0.79	0.98	1.00	1.00	0.64	0.80	0.94	1.00	0.50	0.66	0.81	0.93	-	0.52	0.67	0.80
		kW	1.44	1.52	1.60	1.68	1.84	1.90	1.95	2.01	2.25	2.27	2.29	2.30	-	2.73	2.76	2.78
	125	TC	13.6	14.2	14.8	15.5	15.6	16.0	16.3	16.7	16.8	16.9	17.0	17.1	-	17.7	17.8	17.9
		S/T	0.82	1.00	1.00	1.00	0.66	0.82	0.97	1.00	0.51	0.68	0.83	0.96	-	0.54	0.69	0.83
		kW	1.41	1.48	1.55	1.64	1.65	1.70	1.74	1.79	1.80	1.82	1.83	1.84	-	1.92	1.94	1.95

COOLING-3TON

3TON SYSTEM-----EODA19H-2436ABA+EAHDEN-36ABA																		
Indoor Airflow	**Outdoor**	**IWB(°F)**	**59**				**63**				**67**				**71**			
(CFM)	**DB(°F)**	**IDB(°F)**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**
600	65	TC	23.0	24.0	25.0	26.1	26.5	27.1	27.7	28.3	29.8	29.9	30.1	30.3	-	34.5	34.7	34.9
		S/T	0.56	0.69	0.76	0.81	0.45	0.57	0.67	0.75	0.35	0.47	0.57	0.66	-	0.37	0.48	0.57
		kW	1.10	1.16	1.22	1.28	1.31	1.34	1.38	1.42	1.51	1.52	1.53	1.54	-	1.82	1.84	1.85
	75	TC	22.4	23.4	24.4	25.5	26.2	26.4	26.5	26.7	29.0	29.2	29.3	29.5	-	33.6	33.8	34.0
		S/T	0.58	0.71	0.78	0.81	0.46	0.58	0.68	0.77	0.36	0.48	0.59	0.68	-	0.38	0.49	0.58
		kW	1.26	1.33	1.40	1.47	1.52	1.54	1.54	1.56	1.73	1.74	1.75	1.76	-	2.08	2.10	2.12
	85	TC	21.8	22.8	23.8	24.8	25.5	25.7	25.8	26.0	28.2	28.4	28.6	28.7	-	32.8	32.9	33.1
		S/T	0.59	0.73	0.80	0.81	0.48	0.60	0.70	0.79	0.37	0.49	0.60	0.69	-	0.39	0.50	0.60
		kW	1.45	1.52	1.61	1.69	1.75	1.76	1.77	1.79	1.98	1.99	2.01	2.02	-	2.39	2.40	2.42
	95	TC	21.2	22.2	23.1	24.1	24.4	25.0	25.6	26.1	27.5	27.6	27.8	27.9	-	31.9	32.1	32.2
		S/T	0.61	0.75	0.81	0.81	0.49	0.61	0.72	0.81	0.38	0.50	0.62	0.71	-	0.40	0.52	0.62
		kW	1.69	1.78	1.87	1.97	2.00	2.06	2.12	2.17	2.31	2.33	2.35	2.36	-	2.79	2.81	2.83
	105	TC	19.0	19.8	20.6	21.5	23.3	23.8	24.3	24.9	26.7	26.9	27.0	27.2	-	31.0	31.2	31.3
		S/T	0.63	0.77	0.81	0.81	0.50	0.63	0.74	0.81	0.39	0.52	0.64	0.73	-	0.41	0.53	0.63
		kW	1.72	1.80	1.89	1.99	2.19	2.24	2.30	2.37	2.58	2.60	2.62	2.64	-	3.11	3.14	3.15
	115	TC	17.5	18.3	19.1	19.9	21.5	22.0	22.5	23.0	25.2	25.3	25.4	25.6	-	29.8	30.0	30.1
		S/T	0.64	0.79	0.81	0.81	0.52	0.65	0.76	0.81	0.40	0.53	0.65	0.76	-	0.42	0.55	0.65
		kW	1.80	1.90	1.99	2.09	2.29	2.35	2.41	2.48	2.77	2.78	2.79	2.82	-	3.41	3.44	3.45
	125	TC	14.8	15.5	16.1	16.8	17.0	17.4	17.8	18.2	18.3	18.4	18.5	18.6	-	19.7	19.8	19.9
		S/T	0.66	0.81	0.81	0.81	0.54	0.67	0.79	0.81	0.42	0.55	0.67	0.78	-	0.44	0.56	0.67
		kW	1.71	1.80	1.88	1.97	2.00	2.05	2.10	2.16	2.17	2.19	2.20	2.21	-	2.36	2.38	2.39
800	65	TC	25.1	26.2	27.3	28.5	28.9	29.5	30.2	30.9	32.4	32.6	32.8	33.0	-	37.6	37.9	38.1
		S/T	0.61	0.75	0.83	0.89	0.49	0.62	0.73	0.81	0.38	0.51	0.62	0.72	-	0.40	0.52	0.62
		kW	1.19	1.25	1.32	1.39	1.41	1.45	1.49	1.54	1.63	1.65	1.66	1.67	-	1.98	2.00	2.02
	75	TC	24.4	25.5	26.6	27.7	28.1	28.8	29.4	30.1	31.6	31.8	32.0	32.1	-	36.7	36.9	37.1
		S/T	0.63	0.77	0.85	0.89	0.51	0.63	0.74	0.84	0.39	0.52	0.64	0.74	-	0.41	0.53	0.64
		kW	1.36	1.43	1.51	1.58	1.61	1.66	1.71	1.76	1.87	1.89	1.90	1.91	-	2.27	2.29	2.30
	85	TC	23.8	24.8	25.9	27.0	27.4	28.0	28.6	29.3	30.8	31.0	31.1	31.3	-	35.7	35.9	36.1
		S/T	0.65	0.79	0.87	0.89	0.52	0.65	0.76	0.86	0.40	0.54	0.66	0.76	-	0.42	0.55	0.65
		kW	1.56	1.64	1.73	1.82	1.85	1.90	1.95	2.01	2.15	2.16	2.17	2.19	-	2.60	2.62	2.63
	95	TC	23.2	24.2	25.2	26.3	26.6	27.2	27.9	28.5	29.9	30.1	30.3	30.5	-	34.7	34.9	35.1
		S/T	0.66	0.82	0.89	0.89	0.53	0.67	0.79	0.88	0.42	0.55	0.67	0.78	-	0.44	0.56	0.67
		kW	1.83	1.92	2.02	2.13	2.16	2.22	2.29	2.35	2.50	2.52	2.54	2.56	-	3.02	3.05	3.07
	105	TC	20.7	21.6	22.5	23.5	25.4	25.9	26.5	27.1	29.1	29.3	29.4	29.6	-	33.8	34.0	34.2
		S/T	0.68	0.84	0.89	0.89	0.55	0.69	0.81	0.89	0.43	0.57	0.69	0.80	-	0.45	0.58	0.69
		kW	1.85	1.94	2.04	2.15	2.36	2.42	2.48	2.55	2.79	2.82	2.83	2.85	-	3.38	3.41	3.43
	115	TC	18.7	19.5	20.3	21.2	22.9	23.5	24.0	24.5	26.9	27.0	27.2	27.3	-	31.8	32.0	32.2
		S/T	0.70	0.86	0.89	0.89	0.57	0.71	0.83	0.89	0.44	0.58	0.71	0.82	-	0.46	0.59	0.71
		kW	1.89	1.98	2.08	2.19	2.40	2.47	2.53	2.60	2.91	2.93	2.95	2.97	-	3.60	3.63	3.66
	125	TC	15.5	16.2	16.9	17.6	17.7	18.1	18.5	18.9	19.1	19.2	19.3	19.4	-	20.5	20.7	20.8
		S/T	0.72	0.89	0.89	0.89	0.58	0.73	0.86	0.89	0.45	0.60	0.73	0.85	-	0.48	0.61	0.73
		kW	1.75	1.84	1.93	2.02	2.03	2.08	2.14	2.19	2.22	2.23	2.24	2.26	-	2.41	2.43	2.45

COOLING-3TON

TC: Total capacity (MBH) **S/T:** Sensible heat ratio

3TON SYSTEM-----EODA19H-2436ABA+EAHDEN-36ABA																		
Indoor Airflow	Outdoor	IWB(°F)	59				63				67				71			
(CFM)	DB(°F)	IDB(°F)	70	75	80	85	70	75	80	85	70	75	80	85	70	75	80	85
1000	65	TC	26.8	28.0	29.2	30.4	30.9	31.6	32.3	33.0	34.7	34.9	35.1	35.3	-	40.2	40.5	40.7
		S/T	0.65	0.81	0.89	0.95	0.53	0.66	0.78	0.87	0.41	0.54	0.66	0.77	-	0.43	0.55	0.66
		kW	1.26	1.33	1.40	1.47	1.50	1.55	1.59	1.64	1.75	1.76	1.77	1.78	-	2.12	2.14	2.16
	75	TC	26.1	27.3	28.4	29.7	30.1	30.7	31.4	32.1	33.8	34.0	34.2	34.4	-	39.2	39.4	39.7
		S/T	0.67	0.83	0.91	0.95	0.54	0.68	0.80	0.89	0.42	0.56	0.68	0.79	-	0.44	0.57	0.68
		kW	1.44	1.52	1.60	1.69	1.72	1.76	1.81	1.87	1.99	2.01	2.03	2.04	-	2.42	2.44	2.47
	85	TC	25.4	26.5	27.7	28.9	29.3	29.9	30.6	31.3	32.9	33.1	33.3	33.5	-	38.2	38.4	38.6
		S/T	0.69	0.85	0.93	0.95	0.56	0.70	0.82	0.92	0.43	0.57	0.70	0.81	-	0.45	0.58	0.70
		kW	1.65	1.74	1.84	1.94	1.97	2.02	2.08	2.14	2.28	2.30	2.32	2.34	-	2.78	2.80	2.82
	95	TC	24.8	25.8	26.9	28.1	28.5	29.1	29.8	30.5	32.0	32.2	32.4	32.6	-	37.2	37.4	37.6
		S/T	0.71	0.87	0.95	0.95	0.57	0.72	0.84	0.94	0.44	0.59	0.72	0.83	-	0.47	0.60	0.72
		kW	1.94	2.03	2.14	2.26	2.30	2.36	2.43	2.50	2.66	2.68	2.71	2.73	-	3.24	3.26	3.29
	105	TC	22.1	23.0	24.0	25.1	27.1	27.7	28.4	29.0	31.1	31.3	31.5	31.7	-	36.1	36.3	36.5
		S/T	0.73	0.90	0.95	0.95	0.59	0.74	0.86	0.95	0.46	0.61	0.74	0.86	-	0.48	0.62	0.74
		kW	1.95	2.05	2.15	2.27	2.50	2.57	2.65	2.72	2.97	2.99	3.02	3.04	-	3.60	3.63	3.65
	115	TC	19.8	20.6	21.5	22.5	24.3	24.8	25.4	26.0	28.4	28.6	28.7	28.9	-	33.6	33.8	34.0
		S/T	0.75	0.92	0.95	0.95	0.61	0.76	0.89	0.95	0.47	0.62	0.76	0.88	-	0.49	0.64	0.76
		kW	1.97	2.07	2.17	2.29	2.52	2.58	2.66	2.73	3.05	3.08	3.09	3.12	-	3.78	3.80	3.83
	125	TC	16.2	16.9	17.6	18.4	18.5	18.9	19.4	19.8	20.0	20.1	20.2	20.3	-	21.5	21.6	21.7
		S/T	0.77	0.95	0.95	0.95	0.62	0.78	0.92	0.95	0.48	0.64	0.79	0.91	-	0.51	0.66	0.78
		kW	1.80	1.89	1.97	2.08	2.09	2.14	2.21	2.26	2.29	2.30	2.31	2.33	-	2.49	2.50	2.52
1200	65	TC	28.3	29.5	30.8	32.2	32.6	33.3	34.1	34.8	36.6	36.8	37.1	37.3	-	42.5	42.8	43.0
		S/T	0.69	0.85	0.94	1.00	0.56	0.70	0.82	0.92	0.43	0.57	0.70	0.81	-	0.45	0.59	0.70
		kW	1.32	1.39	1.47	1.56	1.58	1.62	1.68	1.72	1.84	1.85	1.87	1.88	-	2.24	2.27	2.28
	75	TC	27.6	28.8	30.0	31.3	31.8	32.5	33.2	34.0	35.7	35.9	36.1	36.3	-	41.4	41.7	41.9
		S/T	0.71	0.87	0.96	1.00	0.57	0.72	0.84	0.94	0.44	0.59	0.72	0.83	-	0.47	0.60	0.72
		kW	1.51	1.60	1.68	1.77	1.81	1.86	1.91	1.97	2.10	2.12	2.13	2.15	-	2.56	2.59	2.60
	85	TC	26.9	28.0	29.2	30.5	30.9	31.6	32.3	33.1	34.8	35.0	35.2	35.3	-	40.3	40.6	40.8
		S/T	0.73	0.90	0.99	1.00	0.59	0.74	0.86	0.97	0.46	0.60	0.74	0.85	-	0.48	0.62	0.74
		kW	1.74	1.83	1.93	2.04	2.07	2.13	2.19	2.26	2.41	2.43	2.45	2.46	-	2.93	2.96	2.98
	95	TC	26.1	27.3	28.5	29.7	30.1	30.8	31.5	32.2	33.8	34.0	34.2	34.4	-	37.7	37.9	38.1
		S/T	0.75	0.92	1.00	1.00	0.60	0.76	0.89	1.00	0.47	0.62	0.76	0.88	-	0.49	0.63	0.76
		kW	2.02	2.14	2.26	2.38	2.42	2.49	2.56	2.64	2.81	2.83	2.85	2.87	-	3.24	3.26	3.28
	105	TC	23.3	24.3	25.4	26.5	28.6	29.3	29.9	30.6	32.9	33.1	33.3	33.4	-	38.2	38.4	38.6
		S/T	0.77	0.95	1.00	1.00	0.62	0.78	0.91	1.00	0.48	0.64	0.78	0.90	-	0.51	0.65	0.78
		kW	2.04	2.15	2.26	2.39	2.62	2.70	2.77	2.86	3.13	3.16	3.18	3.20	-	3.81	3.84	3.86
	115	TC	20.7	21.6	22.5	23.5	25.4	25.9	26.5	27.1	29.7	29.9	30.0	30.2	-	35.2	35.4	35.6
		S/T	0.79	0.98	1.00	1.00	0.64	0.80	0.94	1.00	0.50	0.66	0.81	0.93	-	0.52	0.67	0.80
		kW	2.04	2.15	2.25	2.37	2.61	2.67	2.75	2.82	3.17	3.19	3.21	3.23	-	3.94	3.97	4.00
	125	TC	16.7	17.4	18.2	19.0	19.1	19.6	20.0	20.4	20.6	20.8	20.9	21.0	-	22.2	22.3	22.4
		S/T	0.82	1.00	1.00	1.00	0.66	0.82	0.97	1.00	0.51	0.68	0.83	0.96	-	0.54	0.69	0.83
		kW	1.83	1.91	2.01	2.12	2.13	2.19	2.25	2.30	2.32	2.35	2.36	2.38	-	2.54	2.55	2.57
1300	65	TC	29.0	30.3	31.6	32.9	33.4	34.1	34.9	35.7	37.5	37.7	38.0	38.2	-	43.5	43.8	44.0
		S/T	0.71	0.87	0.96	1.02	0.57	0.71	0.84	0.94	0.44	0.59	0.72	0.83	-	0.47	0.60	0.72
		kW	1.35	1.43	1.51	1.59	1.62	1.66	1.71	1.76	1.88	1.90	1.92	1.93	-	2.30	2.32	2.33
	75	TC	28.3	29.5	30.8	32.1	32.5	33.3	34.0	34.8	36.6	36.8	37.0	37.2	-	42.4	42.7	42.9
		S/T	0.73	0.89	0.98	1.02	0.59	0.73	0.86	0.97	0.45	0.60	0.74	0.85	-	0.48	0.62	0.74
		kW	1.55	1.63	1.72	1.82	1.85	1.91	1.96	2.02	2.16	2.17	2.19	2.20	-	2.62	2.65	2.67
	85	TC	27.5	28.7	30.0	31.3	31.7	32.4	33.1	33.9	35.6	35.8	36.0	36.2	-	41.3	41.5	41.8
		S/T	0.75	0.92	1.01	1.02	0.60	0.75	0.88	0.99	0.47	0.62	0.76	0.88	-	0.49	0.63	0.76
		kW	1.77	1.87	1.98	2.09	2.12	2.18	2.24	2.31	2.46	2.48	2.50	2.52	-	3.00	3.02	3.05
	95	TC	26.8	27.9	29.1	30.4	30.8	31.5	32.2	32.9	34.6	34.8	35.0	35.2	-	38.6	38.8	39.0
		S/T	0.77	0.94	1.02	1.02	0.62	0.77	0.91	1.02	0.48	0.64	0.78	0.90	-	0.50	0.65	0.78
		kW	2.08	2.18	2.30	2.43	2.47	2.54	2.61	2.69	2.87	2.89	2.91	2.93	-	3.31	3.34	3.36
	105	TC	23.9	24.9	26.0	27.1	29.3	30.0	30.7	31.4	33.7	33.9	34.1	34.2	-	39.1	39.3	39.5
		S/T	0.79	0.97	1.02	1.02	0.64	0.80	0.94	1.02	0.49	0.65	0.80	0.93	-	0.52	0.67	0.80
		kW	2.09	2.19	2.31	2.43	2.68	2.76	2.85	2.93	3.21	3.23	3.26	3.27	-	3.90	3.93	3.95
	115	TC	21.2	22.1	23.0	24.0	26.0	26.6	27.2	27.8	30.4	30.6	30.8	30.9	-	36.0	36.2	36.4
		S/T	0.81	1.00	1.02	1.02	0.66	0.82	0.96	1.02	0.51	0.67	0.82	0.95	-	0.53	0.69	0.82
		kW	2.08	2.19	2.29	2.41	2.66	2.74	2.81	2.89	3.24	3.26	3.29	3.30	-	4.02	4.05	4.08
	125	TC	16.9	17.6	18.4	19.2	19.4	19.8	20.2	20.7	20.9	21.0	21.1	21.2	-	22.4	22.6	22.7
		S/T	0.84	1.02	1.02	1.02	0.67	0.84	0.99	1.02	0.52	0.69	0.85	0.98	-	0.55	0.71	0.85
		kW	1.84	1.92	2.02	2.12	2.15	2.20	2.25	2.32	2.35	2.36	2.37	2.39	-	2.55	2.57	2.59

COOLING-ULTRA 3TON

TC: Total capacity (MBH) **S/T:** Sensible heat ratio

ULTRA 3TON SYSTEM-----EODA19H-4860ABA+EAHDEN-36ABA

Indoor Airflow	Outdoor	IWB(°F)	59				63				67				71			
(CFM)	DB(°F)	IDB(°F)	70	75	80	85	70	75	80	85	70	75	80	85	70	75	80	85
600	65	TC	23.7	24.7	25.8	26.9	27.2	27.9	28.5	29.1	30.6	30.8	31.0	31.1	-	35.5	35.7	35.9
		S/T	0.55	0.68	0.75	0.81	0.45	0.56	0.66	0.74	0.35	0.46	0.56	0.65	-	0.36	0.47	0.56
		kW	1.09	1.14	1.21	1.27	1.29	1.33	1.36	1.40	1.49	1.50	1.52	1.52	-	1.80	1.82	1.83
	75	TC	23.1	24.1	25.1	26.2	27.0	27.1	27.3	27.5	29.8	30.0	30.2	30.3	-	34.6	34.8	35.0
		S/T	0.57	0.70	0.77	0.81	0.46	0.57	0.67	0.76	0.36	0.47	0.58	0.67	-	0.37	0.48	0.58
		kW	1.25	1.31	1.38	1.45	1.51	1.52	1.53	1.54	1.71	1.72	1.73	1.74	-	2.06	2.08	2.09
	85	TC	22.5	23.4	24.5	25.5	26.3	26.4	26.6	26.7	29.1	29.2	29.4	29.5	-	33.7	33.9	34.1
		S/T	0.58	0.72	0.79	0.81	0.47	0.59	0.69	0.78	0.37	0.48	0.59	0.69	-	0.38	0.49	0.59
		kW	1.43	1.50	1.59	1.67	1.73	1.74	1.76	1.76	1.96	1.97	1.99	2.00	-	2.36	2.38	2.40
	95	TC	21.9	22.8	23.8	24.8	25.2	25.7	26.3	26.9	28.3	28.4	28.6	28.8	-	32.8	33.0	33.2
		S/T	0.60	0.74	0.81	0.81	0.48	0.61	0.71	0.80	0.38	0.50	0.61	0.70	-	0.39	0.51	0.61
		kW	1.68	1.76	1.85	1.95	1.99	2.03	2.09	2.15	2.29	2.30	2.32	2.34	-	2.76	2.78	2.80
	105	TC	19.5	20.4	21.2	22.1	23.9	24.5	25.0	25.6	27.5	27.6	27.8	28.0	-	31.9	32.1	32.3
		S/T	0.62	0.76	0.81	0.81	0.50	0.62	0.73	0.81	0.39	0.51	0.63	0.72	-	0.41	0.52	0.63
		kW	1.70	1.79	1.87	1.96	2.15	2.22	2.27	2.34	2.56	2.57	2.59	2.61	-	3.08	3.10	3.13
	115	TC	18.4	19.2	20.0	20.9	22.6	23.1	23.6	24.1	26.4	26.6	26.7	26.9	-	31.0	31.2	31.3
		S/T	0.64	0.78	0.81	0.81	0.51	0.64	0.75	0.81	0.40	0.53	0.65	0.75	-	0.42	0.54	0.64
		kW	1.83	1.92	2.01	2.12	2.32	2.38	2.44	2.51	2.80	2.82	2.84	2.86	-	3.42	3.45	3.46
	125	TC	16.1	16.8	17.5	18.3	18.4	18.8	19.2	19.7	19.9	20.0	20.1	20.2	-	21.1	21.2	21.4
		S/T	0.65	0.81	0.81	0.81	0.53	0.66	0.78	0.81	0.41	0.54	0.66	0.77	-	0.43	0.55	0.66
		kW	1.80	1.89	1.98	2.08	2.09	2.14	2.20	2.26	2.29	2.30	2.32	2.33	-	2.45	2.46	2.49
800	65	TC	25.8	26.9	28.1	29.3	29.7	30.4	31.1	31.8	33.4	33.6	33.8	34.0	-	38.7	39.0	39.2
		S/T	0.60	0.74	0.82	0.89	0.49	0.61	0.72	0.80	0.38	0.50	0.61	0.71	-	0.40	0.51	0.61
		kW	1.17	1.23	1.30	1.37	1.40	1.44	1.48	1.52	1.62	1.63	1.64	1.66	-	1.96	1.98	2.00
	75	TC	25.2	26.2	27.4	28.6	28.9	29.6	30.3	30.9	32.5	32.7	32.9	33.1	-	37.8	38.0	38.2
		S/T	0.62	0.76	0.84	0.89	0.50	0.63	0.74	0.82	0.39	0.51	0.63	0.73	-	0.41	0.53	0.63
		kW	1.35	1.41	1.49	1.57	1.59	1.64	1.69	1.73	1.85	1.86	1.88	1.89	-	2.25	2.27	2.28
	85	TC	24.5	25.5	26.7	27.8	28.2	28.8	29.5	30.1	31.7	31.9	32.0	32.2	-	36.8	37.0	37.2
		S/T	0.64	0.78	0.86	0.89	0.51	0.64	0.75	0.85	0.40	0.53	0.65	0.75	-	0.42	0.54	0.65
		kW	1.54	1.62	1.71	1.80	1.83	1.88	1.94	1.99	2.12	2.14	2.15	2.17	-	2.57	2.59	2.61
	95	TC	23.8	24.9	25.9	27.1	27.4	28.0	28.7	29.3	30.8	31.0	31.2	31.3	-	35.8	36.0	36.2
		S/T	0.65	0.81	0.89	0.89	0.53	0.66	0.78	0.87	0.41	0.54	0.66	0.77	-	0.43	0.55	0.66
		kW	1.80	1.90	2.00	2.11	2.14	2.20	2.26	2.32	2.47	2.49	2.51	2.53	-	3.00	3.02	3.04
	105	TC	21.3	22.2	23.1	24.1	26.1	26.7	27.3	27.9	30.0	30.1	30.3	30.5	-	34.8	35.0	35.2
		S/T	0.67	0.83	0.89	0.89	0.54	0.68	0.80	0.89	0.42	0.56	0.68	0.79	-	0.44	0.57	0.68
		kW	1.83	1.92	2.01	2.11	2.33	2.39	2.46	2.53	2.77	2.78	2.80	2.83	-	3.35	3.37	3.40
	115	TC	20.1	20.9	21.8	22.8	24.6	25.2	25.7	26.3	28.8	29.0	29.1	29.3	-	33.8	34.0	34.2
		S/T	0.69	0.85	0.89	0.89	0.56	0.70	0.82	0.89	0.43	0.58	0.70	0.81	-	0.46	0.59	0.70
		kW	1.97	2.06	2.16	2.28	2.50	2.57	2.63	2.71	3.03	3.05	3.07	3.09	-	3.71	3.74	3.77
	125	TC	17.5	18.3	19.1	19.9	20.1	20.5	21.0	21.4	21.7	21.8	21.9	22.0	-	23.0	23.2	23.3
		S/T	0.71	0.88	0.89	0.89	0.58	0.72	0.85	0.89	0.45	0.59	0.72	0.84	-	0.47	0.60	0.72
		kW	1.92	2.02	2.12	2.22	2.25	2.30	2.37	2.42	2.46	2.47	2.49	2.50	-	2.64	2.66	2.68
1000	65	TC	27.6	28.8	30.0	31.3	31.8	32.5	33.2	34.0	35.7	35.9	36.1	36.3	-	41.4	41.7	41.9
		S/T	0.65	0.80	0.88	0.95	0.52	0.65	0.77	0.86	0.40	0.54	0.66	0.76	-	0.42	0.55	0.65
		kW	1.25	1.31	1.38	1.46	1.49	1.53	1.57	1.62	1.73	1.74	1.75	1.76	-	2.10	2.12	2.13
	75	TC	26.9	28.1	29.3	30.5	30.9	31.6	32.4	33.1	34.8	35.0	35.2	35.4	-	40.4	40.6	40.8
		S/T	0.66	0.82	0.90	0.95	0.53	0.67	0.79	0.88	0.41	0.55	0.67	0.78	-	0.44	0.56	0.67
		kW	1.43	1.51	1.59	1.67	1.70	1.74	1.80	1.85	1.97	1.99	2.00	2.02	-	2.40	2.42	2.43
	85	TC	26.2	27.3	28.5	29.7	30.1	30.8	31.5	32.2	33.9	34.1	34.3	34.4	-	39.3	39.5	39.7
		S/T	0.68	0.84	0.92	0.95	0.55	0.69	0.81	0.91	0.43	0.57	0.69	0.80	-	0.45	0.58	0.69
		kW	1.64	1.72	1.82	1.91	1.95	2.00	2.06	2.12	2.26	2.28	2.30	2.31	-	2.75	2.76	2.78
	95	TC	25.5	26.6	27.7	28.9	29.3	30.0	30.7	31.3	33.0	33.1	33.3	33.5	-	38.2	38.5	38.7
		S/T	0.70	0.86	0.95	0.95	0.56	0.71	0.83	0.93	0.44	0.58	0.71	0.82	-	0.46	0.59	0.71
		kW	1.91	2.02	2.12	2.23	2.27	2.34	2.41	2.47	2.64	2.65	2.67	2.69	-	3.20	3.23	3.25
	105	TC	22.7	23.7	24.7	25.8	27.9	28.5	29.2	29.8	32.0	32.2	32.4	32.6	-	37.2	37.4	37.6
		S/T	0.72	0.89	0.95	0.95	0.58	0.73	0.85	0.95	0.45	0.60	0.73	0.84	-	0.47	0.61	0.73
		kW	1.93	2.03	2.13	2.25	2.47	2.54	2.62	2.68	2.94	2.96	2.98	3.01	-	3.57	3.59	3.62
	115	TC	21.4	22.4	23.3	24.3	26.3	26.9	27.5	28.1	30.8	31.0	31.2	31.3	-	36.1	36.3	36.5
		S/T	0.74	0.91	0.95	0.95	0.60	0.75	0.88	0.95	0.46	0.61	0.75	0.87	-	0.49	0.63	0.75
		kW	2.07	2.18	2.29	2.40	2.65	2.72	2.80	2.87	3.22	3.25	3.27	3.29	-	3.95	3.98	4.01
	125	TC	18.7	19.6	20.4	21.3	21.5	21.9	22.4	22.9	23.2	23.3	23.4	23.5	-	24.6	24.8	24.9
		S/T	0.76	0.94	0.95	0.95	0.62	0.77	0.91	0.95	0.48	0.63	0.77	0.90	-	0.50	0.65	0.77
		kW	2.03	2.14	2.24	2.35	2.38	2.43	2.50	2.57	2.61	2.62	2.63	2.65	-	2.80	2.82	2.84
1200	65	TC	29.2	30.4	31.7	33.1	33.5	34.3	35.1	35.9	37.7	37.9	38.1	38.3	-	43.8	44.0	44.2
		S/T	0.68	0.84	0.92	1.00	0.55	0.69	0.81	0.91	0.43	0.57	0.69	0.80	-	0.45	0.58	0.69
		kW	1.31	1.38	1.45	1.54	1.56	1.61	1.66	1.71	1.82	1.83	1.85	1.86	-	2.22	2.24	2.25
	75	TC	28.4	29.6	30.9	32.3	32.7	33.4	34.2	34.9	36.7	36.9	37.2	37.4	-	42.6	42.9	43.1
		S/T	0.70	0.86	0.95	1.00	0.56	0.71	0.83	0.93	0.44	0.58	0.71	0.82	-	0.46	0.59	0.71
		kW	1.50	1.58	1.67	1.76	1.79	1.84	1.90	1.95	2.08	2.09	2.12	2.13	-	2.53	2.56	2.57
	85	TC	27.7	28.9	30.1	31.4	31.8	32.5	33.3	34.0	35.8	36.0	36.2	36.4	-	41.5	41.7	42.0
		S/T	0.72	0.89	0.97	1.00	0.58	0.73	0.85	0.96	0.45	0.60	0.73	0.84	-	0.47	0.61	0.73
		kW	1.72	1.82	1.91	2.01	2.05	2.11	2.17	2.23	2.38	2.40	2.42	2.44	-	2.90	2.92	2.95
	95	TC	26.9	28.1	29.3	30.6	31.0	31.7	32.4	33.1	34.8	35.0	35.2	35.4	-	38.8	39.0	39.2
		S/T	0.74	0.91	1.00	1.00	0.60	0.75	0.88	0.98	0.46	0.61	0.75	0.87	-	0.49	0.63	0.75
		kW	2.01	2.12	2.23	2.36	2.40	2.46	2.53	2.60	2.78	2.80	2.82	2.84	-	3.20	3.23	3.25
	105	TC	24.0	25.1	26.1	27.3	29.5	30.1	30.8	31.5	33.8	34.0	34.2	34.4	-	39.3	39.5	39.7
		S/T	0.76	0.94	1.00	1.00	0.61	0.77	0.90	1.00	0.48	0.63	0.77	0.89	-	0.50	0.64	0.77
		kW	2.02	2.13	2.24	2.36	2.60	2.67	2.75	2.83	3.09	3.12	3.14	3.16	-	3.77	3.79	3.82
	115	TC	22.6	23.6	24.6	25.7	27.8	28.4	29.1	29.7	32.5	32.7	32.9	33.1	-	38.1	38.4	38.6
		S/T	0.78	0.96	1.00	1.00	0.63	0.79	0.93	1.00	0.49	0.65	0.79	0.92	-	0.51	0.66	0.79
		kW	2.17	2.28	2.40	2.53	2.78	2.86	2.95	3.02	3.39	3.41	3.44	3.47	-	4.16	4.21	4.24
	125	TC	19.8	20.7	21.5	22.5	22.7	23.2	23.7	24.2	24.5	24.6	24.7	24.9	-	26.0	26.1	26.3
		S/T	0.81	0.99	1.00	1.00	0.65	0.81	0.96	1.00	0.50	0.67	0.82	0.95	-	0.53	0.68	0.82
		kW	2.12	2.24	2.34	2.47	2.49	2.56	2.62	2.69	2.73	2.74	2.76	2.79	-	2.94	2.95	2.98

COOLING-ULTRA 3TON

TC: Total capacity (MBH) **S/T:** Sensible heat ratio

ULTRA 3TON SYSTEM-----EODA19H-4860ABA+EAHDEN-36ABA																		
Indoor Airflow	**Outdoor**	**IWB(°F)**	**59**				**63**				**67**				**71**			
(CFM)	**DB(°F)**	**IDB(°F)**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**
1300	65	TC	29.9	31.2	32.5	33.9	34.4	35.1	35.9	36.7	38.6	38.8	39.1	39.3	-	44.8	45.1	45.3
		S/T	0.70	0.86	0.95	1.02	0.56	0.71	0.83	0.93	0.44	0.58	0.71	0.82	-	0.46	0.59	0.71
		kW	1.34	1.41	1.49	1.57	1.60	1.64	1.69	1.74	1.86	1.88	1.89	1.91	-	2.28	2.30	2.31
	75	TC	29.1	30.4	31.7	33.0	33.5	34.2	35.0	35.8	37.6	37.8	38.1	38.3	-	43.7	43.9	44.2
		S/T	0.72	0.88	0.97	1.02	0.58	0.72	0.85	0.95	0.45	0.60	0.73	0.84	-	0.47	0.61	0.73
		kW	1.53	1.62	1.71	1.80	1.83	1.88	1.94	2.00	2.13	2.14	2.17	2.18	-	2.60	2.62	2.64
	85	TC	28.3	29.6	30.8	32.2	32.6	33.3	34.1	34.9	36.6	36.9	37.1	37.3	-	42.5	42.8	43.0
		S/T	0.74	0.91	1.00	1.02	0.59	0.74	0.87	0.98	0.46	0.61	0.75	0.86	-	0.48	0.62	0.75
		kW	1.75	1.86	1.95	2.06	2.10	2.15	2.22	2.29	2.44	2.46	2.48	2.50	-	2.97	3.00	3.02
	95	TC	27.6	28.8	30.0	31.3	31.7	32.4	33.2	33.9	35.7	35.9	36.1	36.3	-	39.7	39.9	40.2
		S/T	0.76	0.93	1.02	1.02	0.61	0.76	0.90	1.01	0.47	0.63	0.77	0.89	-	0.50	0.64	0.77
		kW	2.05	2.17	2.28	2.41	2.44	2.51	2.59	2.66	2.85	2.87	2.89	2.91	-	3.28	3.30	3.33
	105	TC	24.6	25.7	26.8	27.9	30.2	30.9	31.6	32.3	34.7	34.9	35.1	35.2	-	40.2	40.4	40.7
		S/T	0.78	0.96	1.02	1.02	0.63	0.79	0.92	1.02	0.49	0.65	0.79	0.91	-	0.51	0.66	0.79
		kW	2.06	2.18	2.29	2.41	2.66	2.74	2.82	2.90	3.17	3.20	3.22	3.23	-	3.85	3.88	3.92
	115	TC	23.2	24.2	25.2	26.3	28.5	29.1	29.8	30.4	33.3	33.5	33.7	33.9	-	39.1	39.3	39.5
		S/T	0.80	0.99	1.02	1.02	0.65	0.81	0.95	1.02	0.50	0.67	0.81	0.94	-	0.53	0.68	0.81
		kW	2.22	2.33	2.45	2.58	2.85	2.92	3.01	3.09	3.47	3.49	3.52	3.55	-	4.27	4.30	4.33
	125	TC	20.1	20.9	21.8	22.8	23.0	23.5	24.0	24.6	24.8	24.9	25.1	25.2	-	26.6	26.8	26.9
		S/T	0.83	1.02	1.02	1.02	0.67	0.83	0.98	1.02	0.52	0.69	0.84	0.97	-	0.54	0.70	0.84
		kW	2.14	2.24	2.36	2.49	2.51	2.58	2.64	2.72	2.75	2.76	2.79	2.80	-	2.99	3.02	3.04

COOLING-4TON

4TON SYSTEM-----EODA19H-4860ABA+EAHDEN-48ABA																		
Indoor Airflow	**Outdoor**	**IWB(°F)**	**59**				**63**				**67**				**71**			
(CFM)	**DB(°F)**	**IDB(°F)**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**
800	65	TC	31.9	33.3	34.7	36.2	36.7	37.6	38.4	39.3	41.3	41.5	41.8	42.0	-	47.9	48.2	48.4
		S/T	0.54	0.67	0.74	0.81	0.44	0.55	0.65	0.72	0.34	0.45	0.55	0.64	-	0.36	0.46	0.55
		kW	1.52	1.60	1.69	1.78	1.81	1.86	1.91	1.97	2.09	2.11	2.13	2.14	-	2.53	2.55	2.57
	75	TC	31.1	32.4	33.8	35.3	36.4	36.6	36.8	37.0	40.2	40.5	40.7	40.9	-	46.7	46.9	47.2
		S/T	0.56	0.69	0.76	0.82	0.45	0.56	0.66	0.74	0.35	0.46	0.57	0.66	-	0.37	0.47	0.57
		kW	1.75	1.84	1.93	2.04	2.11	2.13	2.14	2.16	2.39	2.42	2.43	2.45	-	2.90	2.91	2.94
	85	TC	30.3	31.6	33.0	34.4	35.4	35.6	35.8	36.0	39.2	39.4	39.6	39.8	-	45.5	45.7	46.0
		S/T	0.57	0.71	0.78	0.82	0.46	0.58	0.68	0.76	0.36	0.48	0.58	0.67	-	0.38	0.49	0.58
		kW	2.01	2.11	2.22	2.34	2.42	2.44	2.46	2.47	2.75	2.77	2.78	2.80	-	3.32	3.34	3.37
	95	TC	29.5	30.7	32.1	33.5	33.9	34.7	35.5	36.3	38.1	38.3	38.5	38.8	-	44.2	44.5	44.7
		S/T	0.59	0.73	0.80	0.82	0.48	0.60	0.70	0.78	0.37	0.49	0.60	0.69	-	0.39	0.50	0.60
		kW	2.35	2.46	2.60	2.74	2.78	2.86	2.94	3.02	3.21	3.23	3.25	3.28	-	3.87	3.90	3.92
	105	TC	25.8	26.9	28.1	29.3	31.6	32.4	33.1	33.8	37.1	37.3	37.5	37.7	-	43.0	43.2	43.5
		S/T	0.61	0.75	0.82	0.82	0.49	0.61	0.72	0.81	0.38	0.50	0.62	0.71	-	0.40	0.51	0.62
		kW	2.33	2.44	2.57	2.70	2.95	3.04	3.12	3.20	3.59	3.61	3.64	3.66	-	4.32	4.34	4.38
	115	TC	24.3	25.3	26.4	27.6	29.8	30.5	31.2	31.9	34.9	35.1	35.3	35.5	-	41.3	41.6	41.8
		S/T	0.62	0.77	0.82	0.82	0.50	0.63	0.74	0.82	0.39	0.52	0.63	0.73	-	0.41	0.53	0.63
		kW	2.50	2.62	2.75	2.90	3.17	3.26	3.35	3.44	3.83	3.86	3.88	3.91	-	4.72	4.77	4.80
	125	TC	20.6	21.5	22.4	23.4	23.6	24.1	24.6	25.2	25.4	25.6	25.7	25.9	-	27.3	27.5	27.6
		S/T	0.64	0.79	0.82	0.82	0.52	0.65	0.76	0.82	0.40	0.53	0.65	0.75	-	0.42	0.55	0.65
		kW	2.38	2.50	2.61	2.74	2.77	2.84	2.90	2.99	3.01	3.04	3.05	3.08	-	3.27	3.30	3.32
1050	65	TC	34.6	36.1	37.7	39.3	39.9	40.8	41.7	42.6	44.8	45.1	45.3	45.6	-	52.0	52.3	52.6
		S/T	0.59	0.73	0.80	0.88	0.48	0.60	0.70	0.79	0.37	0.49	0.60	0.69	-	0.39	0.50	0.60
		kW	1.64	1.72	1.82	1.91	1.95	2.01	2.06	2.12	2.26	2.28	2.29	2.31	-	2.75	2.77	2.79
	75	TC	33.7	35.2	36.7	38.3	38.8	39.7	40.6	41.5	43.6	43.9	44.1	44.4	-	50.6	50.9	51.2
		S/T	0.61	0.75	0.82	0.89	0.49	0.61	0.72	0.81	0.38	0.50	0.62	0.71	-	0.40	0.51	0.61
		kW	1.87	1.98	2.08	2.19	2.23	2.29	2.36	2.42	2.58	2.60	2.62	2.64	-	3.13	3.16	3.18
	85	TC	32.9	34.3	35.8	37.3	37.8	38.7	39.5	40.4	42.5	42.7	43.0	43.2	-	49.3	49.6	49.9
		S/T	0.62	0.77	0.84	0.89	0.50	0.63	0.74	0.83	0.39	0.52	0.63	0.73	-	0.41	0.53	0.63
		kW	2.16	2.27	2.39	2.51	2.56	2.63	2.70	2.78	2.96	2.98	3.01	3.02	-	3.59	3.62	3.65
	95	TC	32.0	33.4	34.8	36.3	36.8	37.6	38.5	39.3	41.4	41.6	41.8	42.0	-	48.0	48.3	48.5
		S/T	0.64	0.79	0.87	0.89	0.52	0.65	0.76	0.85	0.40	0.53	0.65	0.75	-	0.42	0.54	0.65
		kW	2.52	2.65	2.79	2.94	2.99	3.07	3.16	3.24	3.46	3.48	3.51	3.53	-	4.19	4.22	4.24
	105	TC	28.0	29.2	30.4	31.8	34.3	35.1	35.9	36.7	40.2	40.4	40.7	40.9	-	46.6	46.9	47.2
		S/T	0.66	0.81	0.89	0.89	0.53	0.66	0.78	0.88	0.41	0.55	0.67	0.77	-	0.43	0.56	0.67
		kW	2.49	2.61	2.74	2.89	3.17	3.26	3.35	3.44	3.86	3.88	3.92	3.94	-	4.66	4.70	4.74
	115	TC	26.4	27.5	28.7	29.9	32.4	33.1	33.8	34.6	37.9	38.1	38.3	38.5	-	44.8	45.1	45.3
		S/T	0.68	0.83	0.89	0.89	0.55	0.68	0.80	0.89	0.42	0.56	0.69	0.79	-	0.45	0.57	0.69
		kW	2.68	2.81	2.95	3.10	3.41	3.50	3.59	3.69	4.13	4.15	4.18	4.21	-	5.10	5.14	5.17
	125	TC	22.3	23.3	24.3	25.4	25.6	26.1	26.7	27.3	27.6	27.7	27.9	28.0	-	29.6	29.8	30.0
		S/T	0.70	0.86	0.89	0.89	0.56	0.70	0.83	0.89	0.44	0.58	0.71	0.82	-	0.46	0.59	0.71
		kW	2.53	2.66	2.79	2.93	2.96	3.02	3.11	3.19	3.23	3.24	3.27	3.28	-	3.50	3.53	3.56

COOLING-4TON

TC: Total capacity (MBH) **S/T:** Sensible heat ratio

4TON SYSTEM-----EODA19H-4860ABA+EAHDEN-48ABA																		
Indoor Airflow	**Outdoor**	**IWB(°F)**	**59**				**63**				**67**				**71**			
(CFM)	**DB(°F)**	**IDB(°F)**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**
1300	65	TC	36.9	38.5	40.2	41.9	42.5	43.5	44.4	45.4	47.8	48.0	48.3	48.6	-	55.4	55.7	56.0
		S/T	0.63	0.78	0.85	0.93	0.51	0.64	0.75	0.84	0.39	0.52	0.64	0.74	-	0.41	0.53	0.64
		kW	1.73	1.83	1.93	2.03	2.07	2.13	2.19	2.25	2.41	2.42	2.44	2.46	-	2.93	2.95	2.97
	75	TC	36.0	37.5	39.2	40.8	41.4	42.3	43.3	44.3	46.5	46.8	47.1	47.3	-	54.0	54.3	54.6
		S/T	0.65	0.80	0.88	0.95	0.52	0.65	0.77	0.86	0.40	0.54	0.66	0.76	-	0.42	0.55	0.66
		kW	1.99	2.09	2.21	2.32	2.37	2.43	2.50	2.58	2.75	2.77	2.79	2.81	-	3.34	3.37	3.39
	85	TC	35.0	36.5	38.1	39.8	40.3	41.2	42.2	43.1	45.3	45.6	45.8	46.1	-	52.6	52.9	53.2
		S/T	0.66	0.82	0.90	0.95	0.54	0.67	0.79	0.88	0.42	0.55	0.67	0.78	-	0.44	0.56	0.67
		kW	2.28	2.40	2.53	2.67	2.71	2.79	2.87	2.95	3.15	3.17	3.19	3.22	-	3.83	3.86	3.88
	95	TC	34.1	35.6	37.1	38.7	39.2	40.1	41.0	41.9	44.1	44.3	44.6	44.8	-	51.2	51.4	51.7
		S/T	0.68	0.84	0.92	0.95	0.55	0.69	0.81	0.91	0.43	0.57	0.69	0.80	-	0.45	0.58	0.69
		kW	2.66	2.81	2.95	3.11	3.16	3.26	3.35	3.44	3.67	3.70	3.73	3.75	-	4.46	4.48	4.52
	105	TC	29.8	31.1	32.5	33.9	36.6	37.4	38.3	39.1	42.9	43.1	43.3	43.6	-	49.7	50.0	50.3
		S/T	0.70	0.86	0.95	0.95	0.57	0.71	0.83	0.93	0.44	0.58	0.71	0.82	-	0.46	0.59	0.71
		kW	2.62	2.76	2.91	3.06	3.36	3.45	3.56	3.65	4.10	4.13	4.15	4.19	-	4.96	5.00	5.04
	115	TC	27.8	29.0	30.3	31.6	34.1	34.9	35.7	36.5	40.0	40.2	40.4	40.6	-	47.3	47.6	47.8
		S/T	0.72	0.89	0.95	0.95	0.58	0.73	0.86	0.95	0.45	0.60	0.73	0.85	-	0.47	0.61	0.73
		kW	2.78	2.92	3.08	3.24	3.55	3.65	3.75	3.86	4.32	4.35	4.38	4.40	-	5.35	5.40	5.43
	125	TC	23.6	24.6	25.6	26.7	27.0	27.6	28.2	28.8	29.1	29.3	29.4	29.6	-	31.2	31.4	31.6
		S/T	0.74	0.92	0.95	0.95	0.60	0.75	0.88	0.95	0.47	0.62	0.76	0.87	-	0.49	0.63	0.75
		kW	2.64	2.77	2.90	3.04	3.08	3.16	3.24	3.32	3.36	3.39	3.40	3.43	-	3.65	3.68	3.71
1550	65	TC	38.9	40.6	42.4	44.2	44.8	45.8	46.8	47.9	50.4	50.6	50.9	51.2	-	58.4	58.8	59.1
		S/T	0.66	0.82	0.90	0.99	0.54	0.67	0.79	0.88	0.42	0.55	0.67	0.78	-	0.44	0.56	0.67
		kW	1.82	1.92	2.03	2.14	2.17	2.24	2.30	2.37	2.53	2.55	2.57	2.59	-	3.09	3.11	3.14
	75	TC	37.9	39.6	41.3	43.1	43.6	44.6	45.6	46.7	49.1	49.3	49.6	49.9	-	56.9	57.2	57.6
		S/T	0.68	0.84	0.92	1.00	0.55	0.69	0.81	0.91	0.43	0.57	0.69	0.80	-	0.45	0.58	0.69
		kW	2.08	2.20	2.32	2.45	2.48	2.56	2.63	2.71	2.90	2.91	2.93	2.96	-	3.52	3.55	3.58
	85	TC	36.9	38.5	40.2	41.9	42.5	43.5	44.4	45.4	47.8	48.0	48.3	48.6	-	55.4	55.7	56.0
		S/T	0.70	0.86	0.95	1.00	0.56	0.71	0.83	0.93	0.44	0.58	0.71	0.82	-	0.46	0.59	0.71
		kW	2.39	2.52	2.66	2.80	2.85	2.94	3.01	3.10	3.31	3.33	3.36	3.39	-	4.03	4.06	4.09
	95	TC	35.9	37.5	39.1	40.8	41.3	42.3	43.2	44.2	46.5	46.7	47.0	47.3	-	51.8	52.1	52.4
		S/T	0.72	0.89	0.97	1.00	0.58	0.73	0.85	0.96	0.45	0.60	0.73	0.84	-	0.47	0.61	0.73
		kW	2.79	2.94	3.10	3.27	3.32	3.42	3.52	3.62	3.86	3.89	3.92	3.95	-	4.45	4.49	4.52
	105	TC	31.4	32.8	34.2	35.7	38.6	39.5	40.4	41.3	45.2	45.4	45.7	45.9	-	52.4	52.7	53.0
		S/T	0.74	0.91	1.00	1.00	0.60	0.75	0.88	0.98	0.46	0.61	0.75	0.87	-	0.49	0.63	0.75
		kW	2.74	2.89	3.04	3.20	3.53	3.63	3.73	3.84	4.31	4.33	4.37	4.40	-	5.23	5.27	5.31
	115	TC	28.7	30.0	31.2	32.6	35.2	36.0	36.8	37.7	41.3	41.5	41.7	42.0	-	48.8	49.1	49.4
		S/T	0.76	0.94	1.00	1.00	0.61	0.77	0.90	1.00	0.48	0.63	0.77	0.89	-	0.50	0.65	0.77
		kW	2.84	2.99	3.13	3.30	3.62	3.72	3.83	3.94	4.42	4.45	4.48	4.52	-	5.48	5.52	5.57
	125	TC	24.0	25.1	26.2	27.3	27.5	28.1	28.8	29.4	29.7	29.9	30.0	30.2	-	31.9	32.1	32.2
		S/T	0.78	0.97	1.00	1.00	0.63	0.79	0.93	1.00	0.49	0.65	0.80	0.92	-	0.52	0.66	0.80
		kW	2.64	2.78	2.92	3.06	3.09	3.17	3.26	3.34	3.38	3.41	3.42	3.45	-	3.68	3.71	3.73
1700	65	TC	40.0	41.7	43.6	45.4	46.1	47.1	48.2	49.2	51.8	52.1	52.3	52.6	-	60.1	60.4	60.7
		S/T	0.68	0.84	0.93	1.01	0.55	0.69	0.81	0.91	0.43	0.57	0.69	0.80	-	0.45	0.58	0.69
		kW	1.87	1.97	2.08	2.19	2.24	2.30	2.37	2.43	2.60	2.62	2.64	2.66	-	3.18	3.20	3.22
	75	TC	39.0	40.7	42.4	44.3	44.9	45.9	46.9	48.0	50.4	50.7	51.0	51.3	-	58.5	58.9	59.2
		S/T	0.70	0.86	0.95	1.03	0.57	0.71	0.83	0.93	0.44	0.58	0.71	0.82	-	0.46	0.59	0.71
		kW	2.14	2.25	2.37	2.51	2.55	2.63	2.70	2.79	2.97	2.99	3.02	3.04	-	3.62	3.66	3.68
	85	TC	38.0	39.6	41.3	43.1	43.7	44.7	45.7	46.7	49.1	49.4	49.7	49.9	-	57.0	57.3	57.6
		S/T	0.72	0.89	0.98	1.03	0.58	0.73	0.85	0.96	0.45	0.60	0.73	0.84	-	0.47	0.61	0.73
		kW	2.45	2.58	2.72	2.87	2.93	3.01	3.10	3.19	3.40	3.43	3.46	3.47	-	4.15	4.18	4.21
	95	TC	36.9	38.5	40.2	41.9	42.5	43.5	44.4	45.4	47.8	48.1	48.3	48.6	-	53.2	53.5	53.8
		S/T	0.74	0.91	1.00	1.03	0.60	0.75	0.88	0.98	0.46	0.61	0.75	0.87	-	0.49	0.63	0.75
		kW	2.86	3.01	3.18	3.35	3.41	3.51	3.61	3.71	3.97	4.00	4.02	4.06	-	4.57	4.60	4.64
	105	TC	32.3	33.7	35.2	36.7	39.7	40.6	41.5	42.4	46.5	46.7	47.0	47.2	-	53.9	54.2	54.5
		S/T	0.76	0.94	1.03	1.03	0.61	0.77	0.90	1.01	0.48	0.63	0.77	0.89	-	0.50	0.64	0.77
		kW	2.81	2.96	3.12	3.28	3.62	3.72	3.83	3.93	4.43	4.45	4.49	4.52	-	5.38	5.42	5.46
	115	TC	29.2	30.5	31.8	33.2	35.8	36.7	37.5	38.3	42.0	42.2	42.4	42.7	-	49.7	50.0	50.2
		S/T	0.78	0.96	1.03	1.03	0.63	0.79	0.93	1.03	0.49	0.65	0.80	0.92	-	0.51	0.66	0.79
		kW	2.87	3.02	3.17	3.34	3.67	3.78	3.88	3.98	4.47	4.50	4.53	4.57	-	5.56	5.61	5.63
	125	TC	24.7	25.8	26.9	28.1	28.3	28.9	29.6	30.2	30.5	30.7	30.9	31.0	-	32.8	33.0	33.1
		S/T	0.81	0.99	1.03	1.03	0.65	0.81	0.96	1.03	0.50	0.67	0.82	0.95	-	0.53	0.68	0.82
		kW	2.71	2.84	2.98	3.14	3.17	3.25	3.34	3.42	3.46	3.49	3.51	3.53	-	3.77	3.80	3.82

COOLING-5TON

TC: Total capacity (MBH) **S/T:** Sensible heat ratio

5TON SYSTEM-----EODA19H-4860ABA+EAHDEN-60ABA																			
Indoor Airflow	Outdoor	IWB(°F)	59				63				67				71				
(CFM)	DB(°F)	IDB(°F)	70	75	80	85	70	75	80	85	70	75	80	85	70	75	80	85	
900	65	TC	36.6	38.2	39.9	41.6	42.2	43.1	44.1	45.1	47.4	47.7	47.9	48.2	-	55.0	55.3	55.6	
		S/T	0.55	0.68	0.75	0.82	0.44	0.56	0.65	0.73	0.35	0.46	0.56	0.65	-	0.36	0.47	0.56	
		kW	1.87	1.97	2.08	2.19	2.22	2.28	2.35	2.42	2.57	2.59	2.61	2.63	-	3.11	3.14	3.16	
	75	TC	35.7	37.2	38.8	40.5	41.8	42.0	42.2	42.5	46.2	46.4	46.7	47.0	-	53.6	53.9	54.2	
		S/T	0.57	0.70	0.77	0.82	0.46	0.57	0.67	0.75	0.35	0.47	0.57	0.66	-	0.37	0.48	0.57	
		kW	2.15	2.26	2.37	2.50	2.60	2.62	2.63	2.65	2.94	2.96	2.98	3.01	-	3.56	3.59	3.61	
	85	TC	34.8	36.3	37.8	39.5	40.7	40.9	41.1	41.4	45.0	45.2	45.5	45.7	-	52.2	52.5	52.7	
		S/T	0.58	0.72	0.79	0.82	0.47	0.59	0.69	0.77	0.36	0.48	0.59	0.68	-	0.38	0.49	0.59	
		kW	2.47	2.60	2.73	2.88	2.98	3.00	3.02	3.05	3.38	3.40	3.42	3.44	-	4.08	4.11	4.13	
	95	TC	33.8	35.3	36.8	38.4	38.9	39.8	40.7	41.6	43.7	44.0	44.2	44.5	-	50.8	51.0	51.3	
		S/T	0.60	0.74	0.81	0.82	0.48	0.60	0.71	0.79	0.37	0.50	0.61	0.70	-	0.39	0.51	0.61	
		kW	2.88	3.03	3.19	3.36	3.41	3.51	3.60	3.70	3.94	3.97	3.99	4.03	-	4.76	4.78	4.82	
	105	TC	29.9	31.2	32.5	33.9	36.7	37.5	38.4	39.2	42.5	42.8	43.0	43.2	-	49.3	49.6	49.9	
		S/T	0.61	0.76	0.82	0.82	0.50	0.62	0.73	0.82	0.38	0.51	0.62	0.72	-	0.40	0.52	0.62	
		kW	2.89	3.04	3.18	3.34	3.68	3.77	3.88	3.98	4.40	4.43	4.46	4.49	-	5.30	5.34	5.38	
	115	TC	27.9	29.1	30.3	31.7	34.2	35.0	35.8	36.6	40.1	40.3	40.5	40.7	-	47.4	47.7	48.0	
		S/T	0.63	0.78	0.82	0.82	0.51	0.64	0.75	0.82	0.40	0.52	0.64	0.74	-	0.42	0.54	0.64	
		kW	3.07	3.22	3.38	3.56	3.89	4.00	4.11	4.22	4.71	4.74	4.77	4.80	-	5.80	5.85	5.90	
	125	TC	23.6	24.6	25.7	26.8	27.0	27.6	28.3	28.9	29.2	29.3	29.5	29.7	-	31.3	31.5	31.7	
		S/T	0.65	0.80	0.82	0.82	0.53	0.66	0.77	0.82	0.41	0.54	0.66	0.76	-	0.43	0.55	0.66	
		kW	2.92	3.06	3.21	3.36	3.39	3.48	3.58	3.66	3.71	3.72	3.75	3.78	-	4.02	4.05	4.08	
1200	65	TC	39.9	41.7	43.5	45.3	46.0	47.0	48.1	49.1	51.7	51.9	52.2	52.5	-	59.9	60.3	60.6	
		S/T	0.60	0.74	0.81	0.89	0.48	0.61	0.71	0.80	0.38	0.50	0.61	0.71	-	0.40	0.51	0.61	
		kW	2.02	2.13	2.24	2.36	2.41	2.47	2.55	2.61	2.79	2.81	2.83	2.85	-	3.38	3.41	3.44	
	75	TC	38.9	40.6	42.4	44.2	44.8	45.8	46.8	47.9	50.3	50.6	50.9	51.2	-	58.4	58.7	59.1	
		S/T	0.62	0.76	0.84	0.89	0.50	0.62	0.73	0.82	0.39	0.51	0.63	0.72	-	0.41	0.52	0.63	
		kW	2.31	2.44	2.57	2.71	2.75	2.83	2.91	2.99	3.19	3.21	3.24	3.26	-	3.87	3.90	3.93	
	85	TC	37.9	39.5	41.2	43.0	43.6	44.6	45.6	46.6	49.0	49.3	49.6	49.8	-	56.9	57.2	57.5	
		S/T	0.63	0.78	0.86	0.89	0.51	0.64	0.75	0.84	0.40	0.53	0.64	0.74	-	0.42	0.54	0.64	
		kW	2.66	2.79	2.94	3.10	3.16	3.25	3.34	3.43	3.65	3.68	3.71	3.73	-	4.43	4.46	4.50	
	95	TC	36.9	38.5	40.1	41.9	42.4	43.4	44.4	45.4	47.7	48.0	48.2	48.5	-	55.3	55.6	55.9	
		S/T	0.65	0.80	0.88	0.89	0.53	0.66	0.77	0.87	0.41	0.54	0.66	0.76	-	0.43	0.55	0.66	
		kW	3.11	3.27	3.44	3.63	3.68	3.79	3.90	4.01	4.27	4.30	4.32	4.36	-	5.16	5.20	5.23	
	105	TC	32.6	34.0	35.5	37.0	40.0	40.9	41.8	42.8	46.4	46.6	46.9	47.1	-	53.8	54.1	54.4	
		S/T	0.67	0.82	0.89	0.89	0.54	0.68	0.79	0.89	0.42	0.56	0.68	0.79	-	0.44	0.57	0.68	
		kW	3.10	3.26	3.43	3.61	3.96	4.07	4.19	4.31	4.77	4.79	4.83	4.86	-	5.76	5.80	5.84	
	115	TC	29.8	31.1	32.4	33.8	36.5	37.4	38.2	39.1	42.8	43.0	43.3	43.5	-	50.6	50.9	51.2	
		S/T	0.69	0.85	0.89	0.89	0.56	0.70	0.82	0.89	0.43	0.57	0.70	0.81	-	0.45	0.58	0.70	
		kW	3.22	3.38	3.55	3.73	4.09	4.21	4.32	4.44	4.96	4.99	5.03	5.06	-	6.13	6.17	6.22	
	125	TC	24.7	25.7	26.8	28.0	28.2	28.9	29.5	30.2	30.5	30.6	30.8	31.0	-	32.7	32.9	33.1	
		S/T	0.71	0.87	0.89	0.89	0.57	0.72	0.84	0.89	0.44	0.59	0.72	0.83	-	0.47	0.60	0.72	
		kW	2.98	3.12	3.27	3.43	3.46	3.56	3.65	3.74	3.79	3.80	3.83	3.86	-	4.11	4.14	4.17	
1500	65	TC	42.7	44.5	46.5	48.5	49.1	50.2	51.4	52.5	55.2	55.5	55.9	56.2	-	64.1	64.4	64.8	
		S/T	0.64	0.79	0.87	0.95	0.52	0.65	0.76	0.85	0.40	0.53	0.65	0.75	-	0.42	0.54	0.65	
		kW	2.14	2.26	2.39	2.52	2.56	2.63	2.71	2.79	2.97	2.99	3.02	3.04	-	3.62	3.65	3.68	
	75	TC	41.6	43.4	45.3	47.2	47.9	49.0	50.1	51.2	53.8	54.1	54.4	54.7	-	62.4	62.8	63.1	
		S/T	0.66	0.81	0.89	0.95	0.53	0.67	0.78	0.88	0.41	0.55	0.67	0.77	-	0.43	0.56	0.67	
		kW	2.46	2.59	2.73	2.87	2.93	3.01	3.10	3.19	3.40	3.42	3.45	3.47	-	4.13	4.17	4.19	
	85	TC	40.5	42.3	44.1	46.0	46.6	47.7	48.7	49.8	52.4	52.7	53.0	53.3	-	60.8	61.1	61.5	
		S/T	0.68	0.83	0.92	0.95	0.55	0.68	0.80	0.90	0.42	0.56	0.69	0.79	-	0.45	0.57	0.69	
		kW	2.82	2.97	3.13	3.30	3.35	3.45	3.55	3.65	3.89	3.92	3.95	3.98	-	4.73	4.76	4.81	
	95	TC	39.4	41.1	42.9	44.8	45.4	46.4	47.4	48.5	51.0	51.3	51.6	51.8	-	59.2	59.5	59.8	
		S/T	0.70	0.86	0.94	0.95	0.56	0.70	0.83	0.93	0.44	0.58	0.71	0.82	-	0.46	0.59	0.71	
		kW	3.29	3.47	3.65	3.86	3.92	4.03	4.14	4.26	4.55	4.58	4.61	4.64	-	5.52	5.56	5.59	
	105	TC	35.2	36.7	38.3	39.9	43.2	44.2	45.2	46.2	49.6	49.8	50.1	50.4	-	57.5	57.8	58.2	
		S/T	0.72	0.88	0.95	0.95	0.58	0.72	0.85	0.95	0.45	0.59	0.73	0.84	-	0.47	0.61	0.73	
		kW	3.32	3.49	3.68	3.87	4.26	4.39	4.51	4.64	5.07	5.10	5.14	5.18	-	6.14	6.19	6.24	
	115	TC	31.5	32.9	34.3	35.8	38.7	39.5	40.4	41.3	45.3	45.5	45.8	46.0	-	53.6	53.9	54.2	
		S/T	0.74	0.91	0.95	0.95	0.59	0.74	0.87	0.95	0.46	0.61	0.75	0.86	-	0.48	0.62	0.75	
		kW	3.36	3.53	3.71	3.90	4.29	4.40	4.52	4.64	5.21	5.24	5.28	5.31	-	6.45	6.50	6.55	
	125	TC	25.8	26.9	28.1	29.3	29.5	30.2	30.8	31.5	31.8	32.0	32.2	32.4	-	34.2	34.4	34.6	
		S/T	0.76	0.94	0.95	0.95	0.61	0.77	0.90	0.95	0.48	0.63	0.77	0.89	-	0.50	0.64	0.77	
		kW	3.06	3.21	3.37	3.54	3.56	3.66	3.75	3.85	3.89	3.92	3.95	3.97	-	4.24	4.26	4.29	
1750	65	TC	44.7	46.7	48.7	50.8	51.5	52.6	53.8	55.0	57.9	58.2	58.5	58.8	-	67.1	67.5	67.9	
		S/T	0.67	0.83	0.91	1.00	0.54	0.68	0.80	0.89	0.42	0.56	0.68	0.79	-	0.44	0.57	0.68	
		kW	2.24	2.36	2.49	2.63	2.68	2.75	2.83	2.91	3.12	3.14	3.16	3.18	-	3.79	3.83	3.86	
	75	TC	43.6	45.5	47.4	49.5	50.1	51.3	52.4	53.6	56.4	56.7	57.0	57.3	-	65.4	65.8	66.1	
		S/T	0.69	0.85	0.94	1.00	0.56	0.70	0.82	0.92	0.43	0.57	0.70	0.81	-	0.45	0.59	0.70	
		kW	2.56	2.70	2.85	3.01	3.05	3.15	3.23	3.33	3.56	3.58	3.61	3.63	-	4.33	4.37	4.40	
	85	TC	42.4	44.3	46.2	48.2	48.8	49.9	51.1	52.2	54.9	55.2	55.5	55.8	-	63.7	64.0	64.4	
		S/T	0.71	0.87	0.96	1.00	0.57	0.72	0.84	0.94	0.44	0.59	0.72	0.83	-	0.47	0.60	0.72	
		kW	2.93	3.10	3.27	3.45	3.50	3.60	3.71	3.82	4.07	4.10	4.13	4.16	-	4.96	4.99	5.03	
	95	TC	41.3	43.1	44.9	46.9	47.5	48.6	49.7	50.8	53.4	53.7	54.0	54.3	-	59.5	59.8	60.1	
		S/T	0.73	0.90	0.99	1.00	0.59	0.74	0.86	0.97	0.46	0.61	0.74	0.86	-	0.48	0.62	0.74	
		kW	3.43	3.62	3.81	4.02	4.09	4.21	4.33	4.45	4.75	4.78	4.82	4.85	-	5.47	5.51	5.55	
	105	TC	37.2	38.8	40.5	42.2	45.7	46.7	47.8	48.8	51.9	52.2	52.5	52.8	-	60.2	60.6	60.9	
		S/T	0.75	0.92	1.00	1.00	0.60	0.76	0.89	1.00	0.47	0.62	0.76	0.88	-	0.49	0.64	0.76	
		kW	3.50	3.68	3.88	4.08	4.50	4.63	4.77	4.89	5.29	5.33	5.37	5.41	-	6.43	6.48	6.53	
	115	TC	32.6	34.0	35.5	37.1	40.1	41.0	41.9	42.8	46.9	47.2	47.4	47.7	-	55.5	55.8	56.1	
		S/T	0.77	0.95	1.00	1.00	0.62	0.78	0.92	1.00	0.48	0.64	0.78	0.91	-	0.51	0.65	0.78	
		kW	3.44	3.62	3.81	4.01	4.41	4.53	4.65	4.78	5.36	5.40	5.43	5.47	-	6.65	6.70	6.74	
	125	TC	26.4	27.5	28.7	30.0	30.2	30.9	31.6	32.3	32.6	32.8	33.0	33.1	-	35.0	35.2	35.4	
		S/T	0.80	0.98	1.00	1.00	0.64	0.80	0.94	1.00	0.50	0.66	0.81	0.93	-	0.52	0.67	0.81	
		kW	3.09	3.24	3.40	3.58	3.61	3.70	3.80	3.90	3.94	3.97	4.00	4.01	-	4.29	4.32	4.34	

COOLING-5TON

TC: Total capacity (MBH) **S/T:** Sensible heat ratio

5TON SYSTEM-----EODA19H-4860ABA+EAHDEN-60ABA																		
Indoor Airflow	**Outdoor**	**IWB(°F)**	**59**				**63**				**67**				**71**			
(CFM)	**DB(°F)**	**IDB(°F)**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**	**70**	**75**	**80**	**85**
1900	65	TC	45.8	47.8	49.9	52.0	52.8	53.9	55.2	56.4	59.3	59.6	60.0	60.3	-	68.8	69.2	69.6
		S/T	0.69	0.85	0.93	1.02	0.56	0.70	0.82	0.92	0.43	0.57	0.70	0.81	-	0.45	0.58	0.70
		kW	2.29	2.41	2.55	2.69	2.74	2.81	2.90	2.99	3.19	3.21	3.24	3.26	-	3.89	3.92	3.96
	75	TC	44.7	46.6	48.6	50.7	51.4	52.6	53.7	55.0	57.8	58.1	58.4	58.7	-	67.0	67.4	67.8
		S/T	0.71	0.87	0.96	1.02	0.57	0.71	0.84	0.94	0.44	0.59	0.72	0.83	-	0.47	0.60	0.72
		kW	2.62	2.76	2.91	3.08	3.13	3.22	3.31	3.42	3.65	3.67	3.70	3.72	-	4.44	4.48	4.51
	85	TC	43.5	45.4	47.3	49.4	50.0	51.2	52.3	53.5	56.3	56.6	56.9	57.2	-	65.3	65.6	66.0
		S/T	0.73	0.90	0.99	1.02	0.59	0.73	0.86	0.97	0.46	0.60	0.74	0.85	-	0.48	0.62	0.74
		kW	3.00	3.17	3.34	3.53	3.58	3.69	3.79	3.91	4.18	4.21	4.23	4.26	-	5.09	5.12	5.16
	95	TC	42.3	44.1	46.1	48.0	48.7	49.8	50.9	52.1	54.7	55.0	55.3	55.7	-	61.0	61.3	61.7
		S/T	0.75	0.92	1.01	1.02	0.60	0.75	0.89	0.99	0.47	0.62	0.76	0.88	-	0.49	0.63	0.76
		kW	3.51	3.69	3.90	4.11	4.18	4.31	4.43	4.56	4.86	4.89	4.93	4.98	-	5.61	5.65	5.70
	105	TC	38.1	39.8	41.5	43.3	46.8	47.9	48.9	50.0	53.2	53.5	53.8	54.1	-	61.7	62.1	62.4
		S/T	0.77	0.95	1.02	1.02	0.62	0.78	0.91	1.02	0.48	0.64	0.78	0.90	-	0.51	0.65	0.78
		kW	3.57	3.76	3.96	4.18	4.60	4.74	4.87	5.01	5.42	5.46	5.50	5.54	-	6.59	6.64	6.69
	115	TC	33.4	34.9	36.4	38.0	41.1	42.0	42.9	43.9	48.1	48.3	48.6	48.9	-	56.9	57.2	57.5
		S/T	0.79	0.97	1.02	1.02	0.64	0.80	0.94	1.02	0.50	0.66	0.80	0.93	-	0.52	0.67	0.80
		kW	3.51	3.70	3.89	4.10	4.51	4.63	4.75	4.89	5.49	5.51	5.56	5.60	-	6.81	6.86	6.91
	125	TC	26.7	27.9	29.1	30.3	30.6	31.3	32.0	32.7	33.0	33.2	33.4	33.6	-	35.5	35.6	35.8
		S/T	0.82	1.00	1.02	1.02	0.66	0.82	0.97	1.02	0.51	0.68	0.83	0.96	-	0.54	0.69	0.83
		kW	3.11	3.27	3.43	3.59	3.63	3.73	3.83	3.92	3.97	3.99	4.02	4.05	-	4.32	4.34	4.37

HEATING-2TON

2TON SYSTEM-----EODA19H-2436ABA+EAHDEN-24ABA																														
INDOOR AIR		OUTDOOR AMBIENT TEMPERATURE(°F)																												
		-22			-13			-4			7			17			27			37			47			57			67		
IDB(°F)	CFM	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP
65	450	10.9	2.57	1.24	13.3	2.59	1.51	15.7	2.60	1.77	18.9	2.60	2.13	21.7	2.59	2.46	21.7	2.17	2.93	22.0	1.94	3.32	22.4	1.81	3.63	22.4	1.65	3.98	22.4	1.49	4.41
	550	11.5	2.74	1.23	14.2	2.76	1.51	16.7	2.77	1.77	20.0	2.77	2.12	23.0	2.76	2.44	23.0	2.31	2.92	23.4	2.07	3.31	23.8	1.93	3.61	23.8	1.76	3.96	23.8	1.59	4.39
	650	12.1	2.90	1.22	14.9	2.92	1.50	17.5	2.93	1.75	21.1	2.93	2.11	24.2	2.92	2.43	24.2	2.44	2.91	24.6	2.18	3.31	25.1	2.04	3.61	25.1	1.86	3.96	25.1	1.68	4.38
	750	12.7	3.03	1.23	15.5	3.05	1.49	18.3	3.06	1.75	22.0	3.06	2.11	25.3	3.05	2.43	25.3	2.55	2.91	25.7	2.28	3.30	26.2	2.13	3.61	26.2	1.95	3.94	26.2	1.75	4.39
	850	13.1	3.15	1.22	16.1	3.17	1.49	19.0	3.18	1.75	22.8	3.18	2.10	26.2	3.16	2.43	26.2	2.65	2.90	26.6	2.37	3.29	27.2	2.21	3.61	27.2	2.02	3.95	27.2	1.82	4.38
70	450	9.6	2.23	1.26	11.8	2.25	1.54	13.9	2.25	1.81	16.7	2.25	2.18	19.1	2.24	2.50	19.2	1.88	2.99	19.4	1.68	3.38	19.8	1.57	3.70	19.8	1.43	4.06	19.8	1.29	4.50
	550	10.2	2.38	1.26	12.5	2.40	1.53	14.7	2.41	1.79	17.7	2.40	2.16	20.3	2.40	2.48	20.3	2.00	2.97	20.7	1.79	3.39	21.1	1.67	3.70	21.1	1.53	4.04	21.1	1.38	4.48
	650	10.7	2.49	1.26	13.2	2.51	1.54	15.5	2.52	1.80	18.6	2.52	2.16	21.4	2.51	2.50	21.4	2.10	2.99	21.7	1.88	3.38	22.1	1.75	3.70	22.1	1.60	4.05	22.1	1.44	4.50
	750	11.2	2.60	1.26	13.7	2.62	1.53	16.2	2.63	1.81	19.4	2.63	2.16	22.3	2.62	2.49	22.3	2.19	2.98	22.7	1.96	3.39	23.1	1.83	3.70	23.1	1.67	4.05	23.1	1.51	4.48
	850	11.6	2.70	1.26	14.3	2.72	1.54	16.8	2.73	1.80	20.2	2.73	2.17	23.2	2.72	2.50	23.2	2.28	2.98	23.5	2.04	3.38	24.0	1.90	3.70	24.0	1.74	4.04	24.0	1.56	4.51
75	450	8.3	1.91	1.27	10.2	1.92	1.56	12.1	1.93	1.84	14.5	1.93	2.20	16.6	1.92	2.53	16.6	1.61	3.02	16.9	1.44	3.44	17.2	1.34	3.76	17.2	1.22	4.13	17.2	1.10	4.58
	550	8.9	2.03	1.28	10.9	2.04	1.57	12.8	2.05	1.83	15.4	2.04	2.21	17.7	2.04	2.54	17.7	1.71	3.03	17.9	1.53	3.43	18.3	1.42	3.78	18.3	1.30	4.13	18.3	1.17	4.58
	650	9.3	2.12	1.29	11.4	2.14	1.56	13.5	2.14	1.85	16.2	2.14	2.22	18.6	2.13	2.56	18.6	1.79	3.05	18.9	1.60	3.46	19.2	1.49	3.78	19.2	1.36	4.14	19.2	1.23	4.57
	750	9.7	2.22	1.28	11.9	2.23	1.56	14.1	2.24	1.84	16.9	2.24	2.21	19.4	2.23	2.55	19.4	1.86	3.06	19.7	1.67	3.46	20.1	1.56	3.78	20.1	1.42	4.15	20.1	1.28	4.60
	850	10.1	2.29	1.29	12.4	2.30	1.58	14.6	2.31	1.85	17.5	2.31	2.22	20.1	2.30	2.56	20.1	1.92	3.07	20.4	1.72	3.48	20.8	1.61	3.79	20.8	1.47	4.15	20.8	1.32	4.62

HEATING-3TON

3TON SYSTEM-----EODA19H-2436ABA+EAHDEN-36ABA																														
INDOOR AIR		OUTDOOR AMBIENT TEMPERATURE(°F)																												
		-22			-13			-4			7			17			27			37			47			57			67		
IDB(°F)	CFM	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP
65	600	13.8	3.38	1.20	16.9	3.41	1.45	19.9	3.43	1.70	23.9	3.44	2.04	26.5	3.24	2.40	28.8	3.07	2.75	32.1	2.91	3.23	33.1	2.75	3.53	33.1	2.51	3.86	33.1	2.21	4.39
	800	15.1	3.70	1.20	18.5	3.74	1.45	21.7	3.76	1.69	26.1	3.77	2.03	28.9	3.54	2.39	31.4	3.37	2.73	35.0	3.19	3.22	36.1	3.01	3.52	36.1	2.75	3.85	36.1	2.43	4.35
	1000	16.1	3.96	1.19	19.8	4.01	1.45	23.2	4.03	1.69	27.9	4.04	2.02	30.9	3.80	2.38	33.5	3.61	2.72	37.4	3.42	3.21	38.6	3.22	3.51	38.6	2.95	3.83	38.6	2.60	4.35
	1200	17.0	4.18	1.19	20.9	4.22	1.45	24.5	4.24	1.69	29.5	4.26	2.03	32.6	4.00	2.39	35.4	3.80	2.73	39.6	3.61	3.21	40.7	3.40	3.51	40.7	3.11	3.84	40.7	2.74	4.35
	1300	17.5	4.28	1.20	21.4	4.33	1.45	25.1	4.35	1.69	30.2	4.36	2.03	33.4	4.10	2.39	36.3	3.90	2.73	40.5	3.69	3.22	41.7	3.48	3.51	41.7	3.18	3.84	41.7	2.81	4.35
70	600	12.2	2.92	1.22	15.0	2.95	1.49	17.6	2.97	1.74	21.2	2.98	2.09	23.4	2.80	2.45	25.4	2.66	2.80	28.4	2.52	3.30	29.2	2.38	3.60	29.2	2.17	3.94	29.2	1.92	4.46
	800	13.3	3.20	1.22	16.3	3.23	1.48	19.2	3.25	1.73	23.1	3.26	2.08	25.5	3.06	2.44	27.7	2.91	2.79	30.9	2.76	3.28	31.9	2.60	3.60	31.9	2.38	3.93	31.9	2.10	4.45
	1000	14.3	3.42	1.23	17.5	3.45	1.49	20.5	3.47	1.73	24.7	3.48	2.08	27.3	3.27	2.45	29.6	3.11	2.79	33.1	2.95	3.29	34.1	2.78	3.60	34.1	2.54	3.93	34.1	2.24	4.46
	1200	15.1	3.60	1.23	18.4	3.64	1.48	21.7	3.66	1.74	26.0	3.67	2.08	28.8	3.45	2.45	31.3	3.28	2.80	35.0	3.11	3.30	36.0	2.93	3.60	36.0	2.68	3.94	36.0	2.36	4.47
	1300	15.4	3.69	1.22	18.9	3.73	1.49	22.2	3.74	1.74	26.7	3.76	2.08	29.5	3.53	2.45	32.1	3.36	2.80	35.8	3.18	3.30	36.9	3.00	3.60	36.9	2.74	3.95	36.9	2.42	4.47
75	600	10.6	2.50	1.24	13.0	2.53	1.51	15.3	2.54	1.77	18.4	2.55	2.11	20.3	2.40	2.48	22.1	2.28	2.84	24.7	2.16	3.35	25.4	2.04	3.65	25.4	1.86	4.00	25.4	1.64	4.54
	800	11.6	2.72	1.25	14.2	2.75	1.51	16.7	2.77	1.77	20.0	2.77	2.12	22.2	2.61	2.49	24.1	2.48	2.85	26.9	2.35	3.35	27.7	2.22	3.66	27.7	2.02	4.02	27.7	1.79	4.54
	1000	12.4	2.90	1.25	15.2	2.93	1.52	17.8	2.95	1.77	21.4	2.96	2.12	23.7	2.78	2.50	25.7	2.64	2.85	28.7	2.50	3.36	29.6	2.36	3.68	29.6	2.16	4.02	29.6	1.90	4.57
	1200	13.1	3.06	1.25	16.0	3.09	1.52	18.8	3.10	1.78	22.6	3.11	2.13	25.0	2.93	2.50	27.2	2.78	2.87	30.4	2.64	3.37	31.3	2.49	3.68	31.3	2.27	4.04	31.3	2.00	4.59
	1300	13.4	3.12	1.26	16.4	3.15	1.53	19.3	3.16	1.79	23.2	3.18	2.14	25.7	2.99	2.52	27.8	2.84	2.87	31.1	2.69	3.39	32.0	2.54	3.69	32.0	2.32	4.04	32.0	2.04	4.60

HEATING-ULTRA 3TON

ULTRA 3TON SYSTEM-----EODA19H-4860ABA+EAHDEN-36ABA																														
INDOOR AIR		OUTDOOR AMBIENT TEMPERATURE(°F)																												
		-22			-13			-4			7			17			27			37			47			57			67		
IDB(°F)	CFM	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP
65	600	19.4	5.14	1.11	23.8	5.15	1.35	28.2	5.14	1.61	32.4	4.88	1.95	32.4	3.95	2.40	32.4	3.47	2.74	32.4	2.94	3.23	32.4	2.69	3.53	32.4	2.46	3.86	32.4	2.17	4.38
	800	21.1	5.62	1.10	26.0	5.64	1.35	30.7	5.62	1.60	35.3	5.33	1.94	35.3	4.32	2.39	35.3	3.80	2.72	35.3	3.22	3.21	35.3	2.95	3.51	35.3	2.69	3.85	35.3	2.38	4.35
	1000	22.6	6.01	1.10	27.8	6.03	1.35	32.8	6.02	1.60	37.8	5.71	1.94	37.7	4.62	2.39	37.7	4.06	2.72	37.7	3.45	3.20	37.7	3.15	3.51	37.7	2.88	3.84	37.7	2.54	4.35
	1200	23.8	6.35	1.10	29.3	6.37	1.35	34.7	6.35	1.60	39.9	6.03	1.94	39.8	4.88	2.39	39.9	4.29	2.73	39.8	3.64	3.20	39.8	3.33	3.50	39.8	3.04	3.84	39.8	2.68	4.35
	1300	24.4	6.51	1.10	30.0	6.53	1.35	35.5	6.51	1.60	40.9	6.18	1.94	40.8	5.01	2.39	40.8	4.40	2.72	40.8	3.73	3.21	40.8	3.41	3.51	40.8	3.12	3.83	40.8	2.75	4.35
70	600	17.1	4.45	1.13	21.0	4.46	1.38	24.9	4.45	1.64	28.6	4.22	1.99	28.6	3.42	2.45	28.6	3.01	2.78	28.6	2.55	3.29	28.6	2.33	3.60	28.6	2.13	3.94	28.6	1.88	4.46
	800	18.6	4.86	1.12	22.9	4.87	1.38	27.1	4.86	1.63	31.2	4.61	1.98	31.2	3.74	2.44	31.2	3.28	2.79	31.2	2.79	3.28	31.2	2.55	3.59	31.2	2.33	3.92	31.2	2.05	4.46
	1000	19.9	5.18	1.13	24.5	5.20	1.38	29.0	5.19	1.64	33.4	4.92	1.99	33.3	3.99	2.45	33.4	3.50	2.80	33.3	2.97	3.29	33.3	2.72	3.59	33.3	2.48	3.94	33.3	2.19	4.46
	1200	21.1	5.47	1.13	25.9	5.49	1.38	30.6	5.47	1.64	35.2	5.19	1.99	35.2	4.21	2.45	35.2	3.70	2.79	35.2	3.14	3.29	35.2	2.87	3.59	35.2	2.62	3.94	35.2	2.31	4.47
	1300	21.6	5.60	1.13	26.5	5.62	1.38	31.4	5.61	1.64	36.1	5.32	1.99	36.1	4.31	2.45	36.1	3.79	2.79	36.1	3.21	3.30	36.1	2.94	3.60	36.1	2.69	3.93	36.1	2.37	4.46
75	600	14.9	3.80	1.15	18.3	3.81	1.41	21.6	3.80	1.67	24.9	3.60	2.03	24.8	2.92	2.49	24.9	2.56	2.85	24.8	2.18	3.33	24.8	1.99	3.65	24.8	1.82	3.99	24.8	1.61	4.51
	800	16.2	4.14	1.15	19.9	4.15	1.41	23.6	4.14	1.67	27.1	3.93	2.02	27.1	3.18	2.50	27.1	2.80	2.84	27.1	2.37	3.35	27.1	2.17	3.66	27.1	1.98	4.01	27.1	1.75	4.54
	1000	17.3	4.40	1.15	21.3	4.41	1.42	25.2	4.40	1.68	29.0	4.18	2.03	29.0	3.38	2.51	29.0	2.97	2.86	28.9	2.52	3.36	28.9	2.31	3.67	28.9	2.11	4.01	28.9	1.86	4.55
	1200	18.3	4.64	1.16	22.5	4.65	1.42	26.6	4.64	1.68	30.6	4.41	2.03	30.6	3.57	2.51	30.6	3.14	2.86	30.6	2.66	3.37	30.6	2.43	3.69	30.6	2.22	4.04	30.6	1.96	4.58
	1300	18.7	4.73	1.16	23.0	4.75	1.42	27.2	4.74	1.68	31.4	4.50	2.05	31.3	3.64	2.52	31.3	3.20	2.87	31.3	2.71	3.39	31.3	2.48	3.70	31.3	2.27	4.04	31.3	2.00	4.59

HEATING-4TON

4TON SYSTEM-----EODA19H-4860ABA+EAHDEN-48ABA																														
INDOOR AIR		OUTDOOR AMBIENT TEMPERATURE(°F)																												
		-22			-13			-4			7			17			27			37			47			57			67		
IDB(°F)	CFM	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP
65	800	19.1	4.44	1.26	23.3	4.48	1.52	27.4	4.50	1.78	33.0	4.52	2.14	39.0	4.66	2.45	40.7	4.14	2.88	43.7	3.85	3.33	44.5	3.59	3.63	44.5	3.28	3.98	44.5	2.95	4.42
	1050	20.7	4.84	1.25	25.3	4.88	1.52	29.8	4.91	1.78	35.8	4.92	2.13	42.3	5.07	2.45	44.1	4.51	2.87	47.4	4.20	3.31	48.3	3.92	3.61	48.3	3.58	3.95	48.3	3.22	4.40
	1350	22.3	5.23	1.25	27.3	5.28	1.52	32.1	5.31	1.77	38.6	5.32	2.13	45.6	5.48	2.44	47.6	4.88	2.86	51.1	4.54	3.30	52.1	4.23	3.61	52.1	3.87	3.95	52.1	3.48	4.39
	1550	23.2	5.45	1.25	28.5	5.50	1.52	33.5	5.53	1.78	40.2	5.55	2.12	47.5	5.72	2.43	49.6	5.09	2.86	53.3	4.73	3.30	54.3	4.41	3.61	54.3	4.03	3.95	54.3	3.63	4.38
	1700	23.9	5.60	1.25	29.3	5.65	1.52	34.4	5.68	1.78	41.3	5.70	2.12	48.8	5.87	2.44	51.0	5.22	2.86	54.8	4.86	3.30	55.8	4.53	3.61	55.8	4.14	3.95	55.8	3.73	4.38
70	800	16.8	3.86	1.28	20.6	3.90	1.55	24.2	3.91	1.81	29.1	3.93	2.17	34.4	4.05	2.49	35.9	3.60	2.92	38.6	3.35	3.38	39.4	3.12	3.70	39.4	2.85	4.05	39.4	2.57	4.49
	1050	18.3	4.18	1.28	22.4	4.22	1.56	26.3	4.24	1.82	31.6	4.26	2.17	37.4	4.39	2.50	39.0	3.90	2.93	41.9	3.63	3.38	42.7	3.39	3.69	42.7	3.09	4.05	42.7	2.78	4.50
	1350	19.7	4.51	1.28	24.1	4.56	1.55	28.4	4.58	1.82	34.1	4.60	2.17	40.3	4.73	2.50	42.1	4.21	2.93	45.2	3.92	3.38	46.1	3.66	3.69	46.1	3.34	4.05	46.1	3.00	4.50
	1550	20.5	4.69	1.28	25.1	4.74	1.55	29.6	4.76	1.82	35.5	4.78	2.18	42.0	4.92	2.50	43.8	4.38	2.93	47.1	4.07	3.39	48.0	3.80	3.70	48.0	3.47	4.05	48.0	3.12	4.51
	1700	21.1	4.81	1.29	25.8	4.86	1.56	30.4	4.88	1.83	36.5	4.90	2.18	43.2	5.05	2.51	45.1	4.49	2.94	48.4	4.17	3.40	49.3	3.90	3.70	49.3	3.56	4.06	49.3	3.20	4.52
75	800	14.6	3.29	1.30	17.9	3.33	1.58	21.1	3.34	1.85	25.3	3.35	2.21	29.9	3.45	2.54	31.2	3.07	2.98	33.5	2.86	3.43	34.2	2.67	3.75	34.2	2.44	4.11	34.2	2.19	4.58
	1050	15.9	3.56	1.31	19.4	3.60	1.58	22.8	3.62	1.85	27.5	3.63	2.22	32.4	3.74	2.54	33.9	3.33	2.98	36.4	3.09	3.45	37.1	2.89	3.76	37.1	2.64	4.12	37.1	2.37	4.59
	1350	17.1	3.83	1.31	20.9	3.87	1.58	24.6	3.88	1.86	29.6	3.90	2.22	35.0	4.01	2.56	36.5	3.57	3.00	39.2	3.32	3.46	40.0	3.10	3.78	40.0	2.83	4.14	40.0	2.55	4.60
	1550	17.8	3.98	1.31	21.8	4.02	1.59	25.7	4.04	1.86	30.9	4.05	2.24	36.5	4.17	2.57	38.1	3.71	3.01	40.9	3.45	3.47	41.7	3.22	3.80	41.7	2.94	4.16	41.7	2.65	4.61
	1700	18.3	4.08	1.31	22.4	4.12	1.59	26.4	4.14	1.87	31.7	4.16	2.23	37.5	4.28	2.57	39.1	3.81	3.01	42.0	3.54	3.48	42.9	3.31	3.80	42.9	3.02	4.16	42.9	2.72	4.62

HEATING-5TON

5TON SYSTEM-----EODA19H-4860ABA+EAHDEN-60ABA																																
INDOOR AIR		OUTDOOR AMBIENT TEMPERATURE(°F)																														
		-22			-13			-4			7			17			27			37			47			57			67			
IDB(°F)	CFM	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	MBh	kw	COP	
65	900	21.3	5.50	1.14	26.0	5.56	1.37	30.6	5.58	1.61	36.8	5.59	1.93	41.2	5.04	2.40	44.8	4.79	2.74	50.0	4.54	3.23	51.0	4.24	3.53	51.0	3.87	3.86	51.0	3.48	4.30	
	1200	23.2	6.03	1.13	28.4	6.08	1.37	33.4	6.11	1.60	40.1	6.12	1.92	45.0	5.51	2.39	48.8	5.24	2.73	54.5	4.97	3.21	55.6	4.64	3.51	55.6	4.24	3.84	55.6	3.81	4.28	
	1500	24.8	6.45	1.13	30.3	6.51	1.36	35.7	6.53	1.60	42.9	6.55	1.92	48.1	5.90	2.39	52.2	5.61	2.73	58.3	5.32	3.21	59.4	4.97	3.50	59.4	4.54	3.83	59.4	4.08	4.27	
	1750	26.0	6.75	1.13	31.8	6.82	1.37	37.4	6.84	1.60	44.9	6.86	1.92	50.3	6.18	2.39	54.6	5.88	2.72	61.0	5.57	3.21	62.2	5.20	3.51	62.2	4.75	3.84	62.2	4.28	4.26	
	1900	26.6	6.93	1.12	32.6	6.99	1.37	38.3	7.02	1.60	46.0	7.03	1.92	51.6	6.34	2.39	56.0	6.03	2.72	62.6	5.71	3.21	63.8	5.33	3.51	63.8	4.87	3.84	63.8	4.39	4.26	
70	900	18.8	4.78	1.15	23.0	4.82	1.40	27.0	4.84	1.63	32.5	4.85	1.96	36.4	4.37	2.44	39.6	4.16	2.79	44.2	3.94	3.29	45.1	3.68	3.59	45.1	3.36	3.93	45.1	3.02	4.38	
	1200	20.5	5.20	1.16	25.1	5.25	1.40	29.5	5.27	1.64	35.4	5.28	1.96	39.7	4.76	2.44	43.1	4.53	2.79	48.2	4.29	3.29	49.1	4.01	3.59	49.1	3.66	3.93	49.1	3.29	4.37	
	1500	21.9	5.56	1.15	26.8	5.61	1.40	31.5	5.63	1.64	37.9	5.64	1.97	42.5	5.09	2.45	46.1	4.84	2.79	51.5	4.59	3.29	52.5	4.28	3.60	52.5	3.91	3.94	52.5	3.52	4.37	
	1750	23.0	5.82	1.16	28.1	5.87	1.40	33.0	5.89	1.64	39.7	5.90	1.97	44.5	5.32	2.45	48.3	5.06	2.80	53.9	4.80	3.29	55.0	4.48	3.60	55.0	4.09	3.94	55.0	3.68	4.38	
	1900	23.5	5.96	1.16	28.8	6.01	1.40	33.8	6.04	1.64	40.7	6.05	1.97	45.6	5.45	2.45	49.5	5.18	2.80	55.3	4.92	3.29	56.4	4.59	3.60	56.4	4.19	3.95	56.4	3.77	4.38	
75	900	16.3	4.07	1.17	20.0	4.11	1.43	23.5	4.13	1.67	28.2	4.13	2.00	31.6	3.73	2.48	34.4	3.54	2.85	38.4	3.36	3.35	39.1	3.14	3.65	39.1	2.86	4.01	39.1	2.58	4.44	
	1200	17.8	4.44	1.17	21.8	4.48	1.43	25.6	4.50	1.67	30.8	4.50	2.01	34.5	4.06	2.49	37.5	3.86	2.85	41.8	3.66	3.35	42.7	3.42	3.66	42.7	3.12	4.01	42.7	2.81	4.45	
	1500	19.0	4.72	1.18	23.3	4.77	1.43	27.4	4.78	1.68	32.9	4.79	2.01	36.9	4.32	2.50	40.0	4.11	2.85	44.7	3.90	3.36	45.6	3.64	3.67	45.6	3.32	4.03	45.6	2.99	4.47	
	1750	19.9	4.93	1.18	24.4	4.98	1.44	28.7	5.00	1.68	34.5	5.01	2.02	38.6	4.51	2.51	41.9	4.29	2.86	46.8	4.07	3.37	47.8	3.80	3.69	47.8	3.47	4.04	47.8	3.12	4.49	
	1900	20.4	5.05	1.18	25.0	5.09	1.44	29.4	5.11	1.69	35.3	5.12	2.02	39.6	4.62	2.51	43.0	4.39	2.87	48.0	4.16	3.38	49.0	3.89	3.69	49.0	3.55	4.05	49.0	3.19	4.50	

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